

LogPlot 2003™

RockWare Inc.®

2221 East St., Suite 101

Golden, CO 80401 USA

Tel: 303-278-3534 fax: 303-278-4099

www.rockware.com

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Address

RockWare, Inc.

The RockWare Building

2221 East Street, Suite 101

Golden, CO 80401 USA

TEL: + 303-278-3534 FAX: + 303-278-4099

<http://www.rockware.com>

email: rockware@rockware.com (general questions), tech@rockware.com (technical support),
info@rockware.com (sales)

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Chapter 1 - Introduction

Welcome

Welcome to LogPlot2003! LogPlot2003 is the newest version of the log plotting software published by RockWare, Inc. It reads user-created or imported data files that contain descriptive, quantitative, and other data, and plots these data as graphic strip logs. The format or "blueprint" of the logs (the components and their locations) is designed within the Log Designer, included with LogPlot2003.

Getting started with this program involves the following steps:

Running the tutorials. These acquaint you with the program, and lead you through the design, data, compile, and viewing steps. See page 12.

Designing your log. Using the built-in Log Designer you can modify our library of designs or create new ones from scratch. See page 15

Entering your data. Mini-spreadsheets handle all the different types of data LogPlot can process. See page 89.

Compiling the data. Establish a few program settings and click a button to plot the data into the design!. See page 163.

Viewing and manipulating your log. View the log on the screen, print it, export it. See page 171.

See also...

Where do I start? (page 13)

Things You Should Know

If you have upgraded from LogPlot2001

If you have upgraded to LogPlot2003 from LogPlot2001, here are some things you should know:

Window / menu modifications:

The Data Editor and the Log Designer share the same window space, and are accessed with their stick-up tabs.

You can have multiple data (DAT) files open at any one time.

Button toolbars are draggable.

All Log Designer dialog boxes use an Apply button to apply changes while leaving the dialog box open for further modification.

New entities:

Interbed data tab links with a Lithology Pattern Column for plotting of interbedded patterns.

Lithology descriptions and patterns can show distinct **contact line** styles.

New **Edit Notes** and **Static Notes** in headers and footers for multi-line text with WYSIWIG wrapping, carriage returns, margins, border, fill, and alignment.

Text Columns now use WYSIWYG wrapping, carriage returns, alignment and margins.

Scalebar can now calculate the labels and tick marks for **deviated wells**. Downhole survey data is read from a new Orientation tab. Scalebar survey data can be entered as dip from horizontal or from vertical.

Scalebar **labels** can have their vertical position automatically adjusted at the top and bottom of the page to avoid overplots.

Grid On Top option and filled **curve + symbol** added to **Curve Columns**.

Grid On Top option added to **CrossPlots**.

New tools:

Update data file from log design will add new tabs (and update existing tabs) in an existing data file, for changes in the log design.

New **Fit To Page** tool at compile time will automatically set the vertical scale to fill a single log page with all of your data.

Offset lithology descriptions can now be placed **upward or downward**, saving log space.

New option for display of patterns with **no background fills**, for draft logs (saves ink!).

LAS Import now seamlessly reads UNIX files, and files with TABS. The LAS min/max's display can ignore or display null values, or replace null values with text. The LAS Importer can also create a text report with Field Name, Units, Min and Max values – helpful for creating a log design.

Paste from a single cell to many.

Statistics can be computed for any column of data values.

Change <Tab> order in the Data Editor.

Cut and paste within cells.

Store the **column width** in the data file.

Added **mouse wheel** and **arrow key** support for scrolling log in the LogView window.

BMP and JPG export from LogView offers resolution options for high-quality exports.

Improved snap when moving entities.

A **selection rectangle** can be used to select multiple entities in the same panel.

Other changes:

Data files must contain **<Tab> characters** between all fields. Spaces are no longer permitted.

Removed

View Data as Text option. (The DAT files are still ASCII text, if you absolutely have to edit them outside the LogPlot Data Editor, just use a text editing program.)

If you have upgraded from LogPlot98

If you have upgraded to LogPlot2003 from LogPlot98, here are some more things you should know (you should also read the LP2001-2003 notes, above):

LogDesign is now built into LogPlot.

The **LogDesign file format (LDF) has changed**. LogPlot 2003 will prompt you to convert files to the older format. Older Versions of Logplot will not be able to read the converted files.

The **format of the LogPlot graphical files (LPT) has changed**. LogPlot and LogView will not read or display logs compiled with LogPlot98 and older versions.

New Log Designer tools:

Log designs can now contain a **footer** which shares all of the header tools. If you opt for headers and footers on each page, the footer will be placed at the bottom of the pages (regardless of how far down the log extends on that page). If you opt for only one header and footer, the footer will be placed directly at the end of the data.

New **Cross-Plot Curve** columns.

New **Vertical Text** columns

Other Log Designer changes:

Multiple selection of entities, so you can move or delete items in groups.

Select **colors** for fonts and symbols.

More **curve symbols**.

New automatic **curve legends**.

Text columns can honor **text indents** or free-form spacing.

New **Scale Bar conversion** tools: from feet-to-meters and meters-to-feet (and customized conversions, too) to enable both metric and English depth labels.

Bitmap columns now accept **JPEG images**.

Vertical body lines can now ignore header and footer margin settings, thus enabling **continuous borders** around logs.

Proportional re-sizing of header/footer pictures. Header/footer pictures now also accepts JPEG images (in addition to BMP and WMF).

The Log Designer program now stores **text locations** slightly differently. This means that if you open an existing log design in the new version, the text may need some adjusting.

Well construction with offset, allowing display of **multiple borings** in a single construction diagram.

New **Lithology Description column** features: you can disable plotting of the keyword and/or the extended description and/or the colon (":") that separates them.

Keyword and Pattern Tools:

Keyword file now supports **foreground and background colors** for patterns.

You can also specify **varying line and dot widths** for patterns.

You must **IMPORT** your LP98 (or 97 or v.1) keyword files into LP2003.

Data changes:

When you create new data tabs, you can select Names from a drop-down list which shows those entity names in the current log design.

New **Vertical Text** and **Cross-Plot Curve** tabs to correspond to the new design tools (above).

Cross-check data and design tool gives you a report of the discrepancies between your data and design.

Data tabs now show the tab-type icon and the entity name.

New tab tools (**column math**, etc.)

DBF data import into the data tabs.

ASCII text import into the data tabs.

LAS import into the data tabs.

Text format: All columns must be separated by Tab characters to ensure future expansion of program tools and backwards compatibility.

Compiling and Plot changes:

Added Settings information on the **Compile window**, for easier viewing/update of scale, LDF file name, etc.

Log Plot files (LPT) now store vertical scale, and page size and orientation, thus simplifying future display.

LogPlot2003 cannot open LPT files created in '98 and earlier versions of the program.

Multiple log "View" windows can be displayed at the same time.

View depths or elevation for any location on the log plot.

Free **Log View program** available for distribution to co-workers for viewing/printing logs.

See the Help messages (using Help / Contents in the LogPlot program) for Information for Logger DOS Users, Information for Logger Mac Users.

System Requirements

LogPlot2003 will run under the minimum system setup listed below, with recommended operating parameters shown in parentheses.

- Windows 98/ME/NT/2000/XP (2000 or XP recommended)
- Pentium or faster processor
- 32 MB RAM (128 MB RAM recommended)
- 10 MB free disk space
- Supports all Windows compatible printers and plotters

Installing LogPlot

To install the LogPlot2003 program, you must follow these steps:

1. Start up Windows, if you haven't already.
2. To avoid possible conflicts, exit any other Windows applications that may be running.
3. Follow the instructions shown below to launch the installation program from a CD-ROM or from an internet download:

CD-ROM

Insert the RockWare-supplied CD-ROM into the CD-ROM drive of your computer.

On many systems, the installation program will start automatically. If it does not, select the **Run** command from the Windows **Start** menu. Type the following in the displayed dialog box:

`x:\SetupCD` and choose **OK**, where "x" is the letter of the drive that contains the CD-ROM.

Select the LogPlot program from the main installation program's listing (along the left), and click the **Install Software** button in the LogPlot pane (to the right) to start the LogPlot installation.

Downloaded from the Internet

LogPlot can be downloaded from RockWare's web site (www.rockware.com) by selecting the "Download" item on the home page, filling in the requested information, selecting the LogPlot2003 program, and following the remaining instructions. In fact, we recommend that registered owners download an updated program from time to time, to take advantages of new features and fixes we implement on a regular basis.

Save the downloadable LogPlot installation file to your c:\temp folder.

In Windows Explorer or My Computer, double-click on this file to start the installation.

4. You may follow the instructions on the screen regarding proceeding with the installation or exiting the installation.

Upgrading from LogPlot98 or LogPlot2001? LogPlot2003 will be installed in a new directory of your hard drive ("LogPlot2003") to eliminate overwriting of your earlier files. If you want to use any of the following user-modifiable files from an earlier version of the program, you will need to copy them to the new LogPlot2003 folder:

LogPlot data files (.dat).

Any Log Design Files (.ldf) that you created within the Log Designer.

The "logplot.key" file that contains your LogPlot keywords. (You'll need to IMPORT these keywords into the keyword editor.)

The "rockutil.pat" and "rockutil.sym" files that contain patterns and symbols that you can customize using the Pattern and Symbol Editor programs.

! LogPlot permits you to maintain multiple versions of the keyword, symbol, and pattern files. See Setting Up Program Files (page 200).

Re-installing LogPlot2003? The installation program will offer you the option of creating a folder into which it will copy existing program files before installing the new ones. It calls this a "backup" folder. If, after re-installation, you want to use any of the files that you modified in previous sessions with the program, you will need to *copy them from the backup folder* to the main LogPlot2003 folder.

Installing the Network Version

If you have purchased the network version of LogPlot2003, you should follow the instructions provided above for the single user installation. The program can be installed from CD-ROM onto a centralized server, or on individual client computers.

Additionally, running the network version requires installation of a "Certificate File" that is supplied by RockWare, initialized for the number of users you specified at the time of purchase. The Certificate File is supplied via email. It is *not* provided with the program CD-ROM.

The Certificate File (which is named "LP2003.LIC") must be copied to a computer that has read/write access from all clients who wish to run the network version of LogPlot. They will be required to specify the path of the Certificate File each time they run the program.

Once the Certificate File is installed it cannot be copied or moved or errors will result.

Starting LogPlot

If you have followed the normal installation, the LogPlot program can be started up as follows:

1. Find the LogPlot shortcut in the **Start / Programs / Logplot2003** menu.
2. Click on the LogPlot2003 icon to start the program.
3. Follow the instructions provided below for single users / network users / command line.

Single Users

The first screen that you see when you launch the program will ask you whether you will be running a Single User or Network version of the program.

1. If you have installed LogPlot and are running LogPlot as a single-user license, click on the **Single User** button. (See "Network User" for network license information.)

The next screen that you will see is a "Welcome to LogPlot2003" window. This screen lists a unique serial number (just now generated by the program when it was first started) for this program on this computer, for the current user. This screen also lists how much time you have left on the "Usage Meter" and the "Time Meter." And, it contains three buttons at the bottom.

If you have purchased LogPlot2003

If you have purchased LogPlot2003, you can probably ignore most of what's on the Welcome window. All you need to do is:

1. Locate the letters and numbers that follow the "Serial Number" label in the Welcome window, and write them down.
2. Locate the letters and numbers on the **sticker** affixed to the CD-ROM from which you installed the program, the user manual and/or the registration card, and write them down. This is your purchase Tracking Number. (Not applicable to internet downloads.)
3. Call RockWare (800-775-6745 in the U.S. or + 303-278-3534) or email RockWare (unlock@rockware.com) or fax RockWare (+303-278-4099) with the Serial Number and your Tracking Number. We will supply you with an "unlocking code" for this installation of the program. (If there is a delay in reaching us, don't worry, you can still use the program for a while before unlocking; see the "trialware" instructions below.)
4. Once you receive the unlocking code from RockWare, click the **Unlock (Purchase) Software** button.
5. Type the unlocking code into the prompt labeled **Enter unlocking code here**, and click **OK**.

The main LogPlot screen will be displayed.

The program is now officially unlocked for you (the current user), and you have unlimited use of the program on this computer. As long as you run LogPlot on the same computer under the same login, the program will remain unlocked. You can even re-install LogPlot2003 (from an Internet update, for example) on the same computer and it will remain unlocked. *

If you install the LogPlot2003 program on a *different* computer, a different Serial Number will be generated and you will need to contact RockWare for a new unlocking code. Please then uninstall the original copy if you are licensed for a single copy only.

6. Establish the program launching information in LogPlot's Options / Startup - Login window. This will enable you to by-pass the initial "Single User / Network User" screen.

* If you have unlocked LogPlot when logged in under a particular log-in ID, then that's the ID for which the program has been unlocked. Another user logging in on the same computer but different ID probably won't have access to LogPlot.

You might consider creating a universal log-in ID for LogPlot users (such as "RockWare" or "LogPlot") and unlock the program under that ID. Or, look into purchasing the network version.

If you are running LogPlot2003 as trialware

If you have not yet purchased the LogPlot2003 program, you may still install it and launch it as described above. The Welcome to LogPlot screen will keep you informed about how many days or launchings of the program you have left. To continue running the program, in its full-featured state, without officially unlocking it:

1. Click the **Continue with Evaluation** button.

The program will start, and you will have access to all of the program features. The only limitation with "trialware" is that it will cease to launch after the days or sessions listed on the Welcome screen have been exceeded. In addition, a "demo" banner will overlay the compiled log diagrams, and some of the exports are disabled.

Network Users

The first screen that you see after launching the program will ask you whether you will be running a Single User or Network version of the program.

1. If you have installed LogPlot and are running LogPlot as a network license, click on the **Network** button. (See "Single User" above for single-user license information.)

The program will then display a window requesting the following information.

2. **User ID:** This is typically your name or other unique identifying string. The ID string is limited to 20 characters, including spaces. Your ID will be stored in the network Certificate File while you are using the program. When you exit LogPlot2003 using the program's **File / Exit** command, your ID will be logged out of the Certificate File.
3. **User Directory (Folder):** Use the **Browse** button to access the directory in which you want the LogPlot2003 program to keep all of your configuration settings and system libraries. This can be a local folder, or a folder elsewhere on the network to which you have read/write access. *Each network user should maintain their own User Directory* to prevent others overwriting their libraries of symbols, patterns, etc.

The User Directory should not be the same as the user's *data* directory in which data files are stored. The user can maintain many data directories, but only a single User Directory. The User Directory should also not be the same folder in which the program is installed.

4. **Network "Certificate File" Location:** Use the **Browse** button to access the directory in which the network's certificate file "LP2003.LIC" has been installed. You may not run the network version of LogPlot2003 without access to the Certificate File which maintains the network count, among other things. Please see your network administrator if you cannot locate this file.
5. Click **OK** at the bottom of the Network Login screen to continue.

The main LogPlot screen will be displayed.

- Establish the program launching information in LogPlot's Options / Startup - Login window. This will enable you to by-pass the initial "Single User / Network User" screen and the Network Login screen.

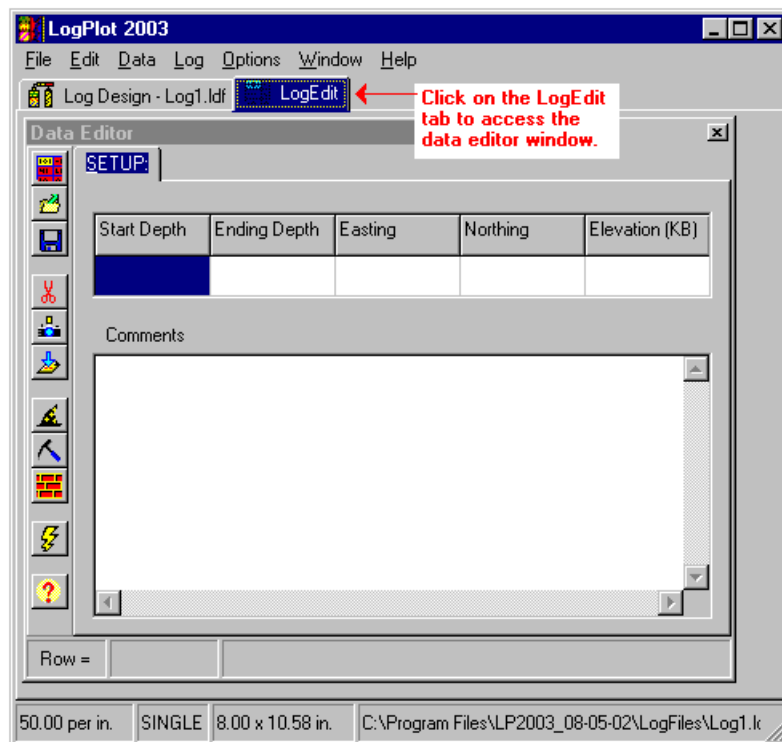
Via Command Line

LogPlot2003 can be launched with a specific data (.dat) file name to load, using command line parameters. Taking this one step further, the program can also be started with a whole batch of things to be done (data to load, settings to establish, log to compile, display, save, and export) via command line batch.

See "Running LogPlot with Command Line Parameters" in the Help system (**Help / Contents**, click the Index tab, type in "Command Line".)

The LogPlot Screens

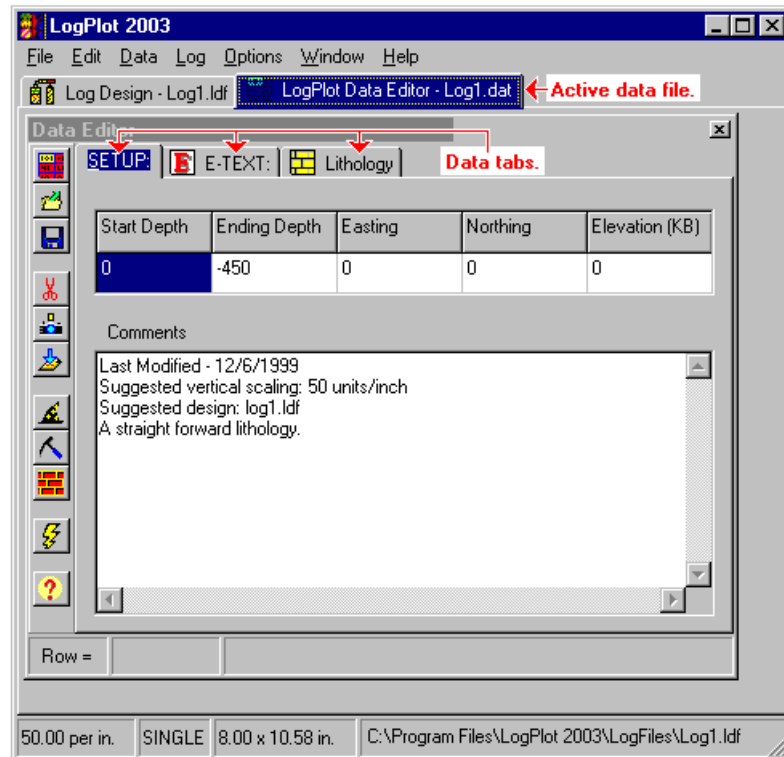
Before you get into the discussion of LogPlot particulars, you should familiarize yourself with the general layout of the program. When you start up LogPlot, you'll see the main program window.



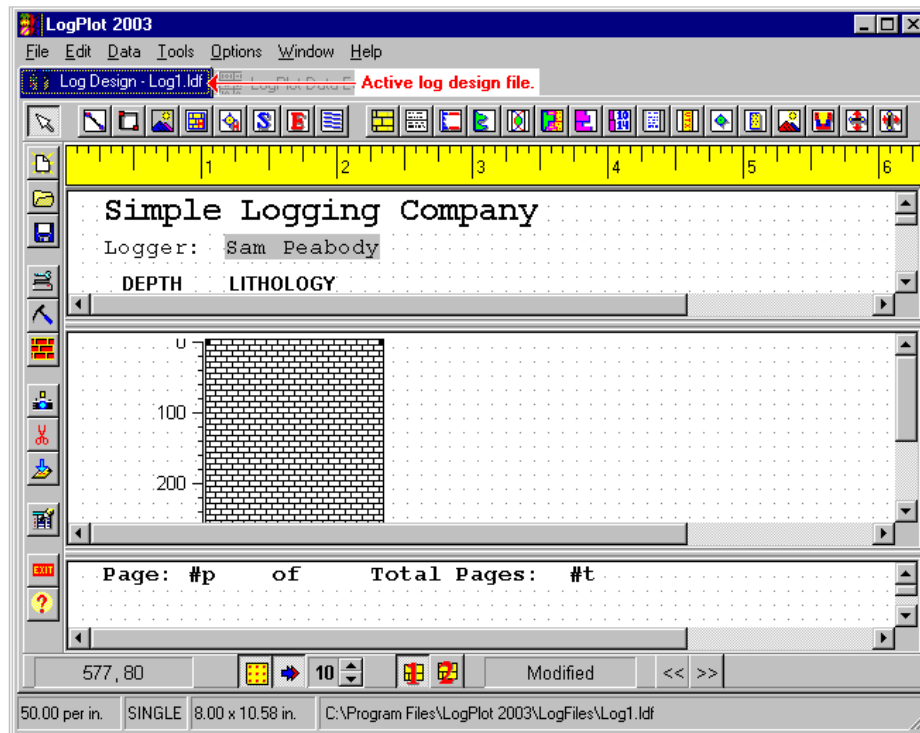
The program first launches with two "tabs" available, one for accessing a data window and one for a log design window. As you use the program, you may see more tabs displayed for additional windows, such as log viewing windows, new data windows, etc.

There are three main types of LogPlot windows:

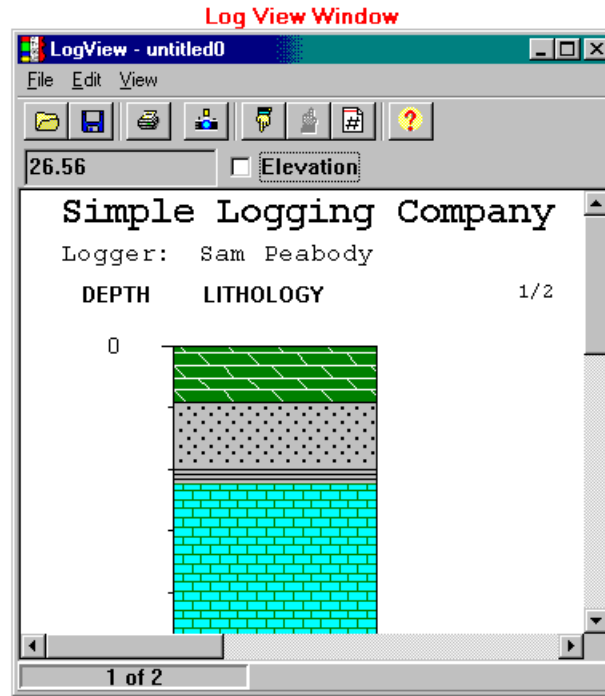
Data Editor Window: A blank Data Editor window will be opened upon program startup. The Data Editor is used to enter or import the descriptive, textual, quantitative, or other data to be displayed on the log. Within the Data Editor itself, the different types of data are also organized into "tabs". The data structure is discussed in the section "Entering Your Data." You now can have multiple data files open at any time.



Design Window: The Log Designer window contains the design tools to create or modify a log design. This is discussed in the section "Designing Your Logs".



View Window: The Log View window is used to display the compiled logs on your screen. Each time you compile a log, it will be displayed automatically in a new Log View window. From this window you can save, print and export the graphic logs. The process of compiling your data and displaying/printing/exporting your logs is discussed in the "Creating Logs" and "Viewing and Manipulating Logs" sections. You can have multiple View windows open at any time.



The LogPlot Tutorial

LogPlot2003 is shipped with a built-in which can launch automatically when the program starts up. If you have deactivated this auto-launch feature (in **Options / System Settings**) you can also start up the tutorial using the **Help / Tutorial** command.

The Tutorial takes you step-by-step through the process of compiling sample data files, designing your own logs, and entering your own data.

The tutorial is displayed in a Windows Help window, and can be moved out of the way by clicking on its title bar and dragging.

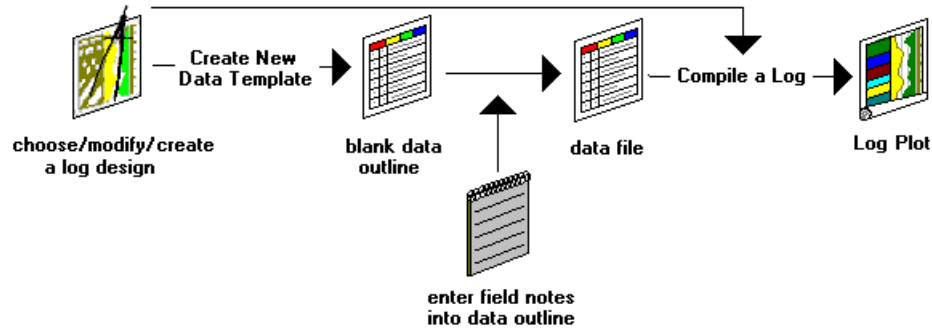
Where Do I Start?

The sequence of steps to take in using LogPlot depends a lot on what kind of data you have and what kind of log you are creating. LogPlot is used in a variety of industries, to display shallow soil borings, monitoring wells, hard rock drill holes, geophysical logs, mud/gas logs, and many more.

Here we list some sample workflows for LogPlot.

Workflow: Choose a Design, Enter Data

Use this workflow for environmental logs, geotechnical logs, most mudlogs and mining logs.



This sample workflow involves the following steps:

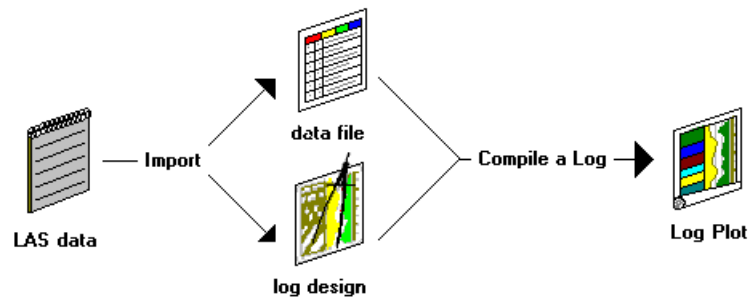
1. Select a log design that matches what your company typically uses or would like to adopt as a "standard" design. You can do this in a variety of ways:

Choose from one of the samples we ship with the program (see Sample Log Designs, page 205) or Start with one of the samples and modify it to suit your needs or create a design from scratch (see page 15), or

Have RockWare create a design for you (email tech@rockware.com for details).
2. Use Log Designer's automatic data-creator to generate a data "template" that matches the design. (See Creating a New Data File for a Log Design, page 139.)
3. Enter the actual field data into the data template. (See the data tabs, page 99.)
4. Compile the data into the design. (See Compiling Logs, page 163.)
5. View/save/print/export the graphic strip log. (See LogView, page 171.)

Workflow: Import LAS Data, Choose a Design

Use this workflow for generating geophysical logs from existing LAS files.



This sample workflow involves the following steps:

1. Import the LAS data into the LogPlot data editor. (Page 156.)
2. Create or select a log design for the data:

Use the import tool to create a basic log design automatically, and modify it to suit your needs (see Importing LAS Data, page 156), or

Choose from one of the samples we ship with the program (see Sample Log Designs page 205) or

Start with one of the samples and modify it to suit your needs or create a design from scratch (see 18), or

Have RockWare create a design for you (email tech@rockware.com for details).

3. Compile the data into the design. (Page 163.)
4. View/save/print/export the graphic strip log. (Page 171.)

Chapter 2 - Designing Your Logs

Log Designer Introduction

The Log Designer is a tool used to design your logs. Using Log Designer, you create the layout of the log, like a "blueprint". Once a design is completed, you can use LogPlot to compile your data into the design.

Log Designer is built right into LogPlot. Just click on the LogDesign tab to bring the Designer window to the front.

Log Designer contains the tools to design these parts of your log:

The log header: Log headers are positioned at the top of the log (optionally at the top of each page) and can contain text, graphics, symbols, patterns, lines, and rectangles.

The log body: The main portion of the log, which can contain columns for lithologic patterns and descriptions, curves, histograms, fill bars, general and vertical text, well construction diagrams, symbol columns, and more.

The log footer: Log footers are placed at the bottom of the log (optionally at the bottom of each page) and can contain the same information as the header (text, graphics, symbols, patterns, lines, and rectangles).

Log Designer Topics:



General Introduction (below).



Log Design Files Introduction (page 18).



Designing the Log Header and Footer (page 23).



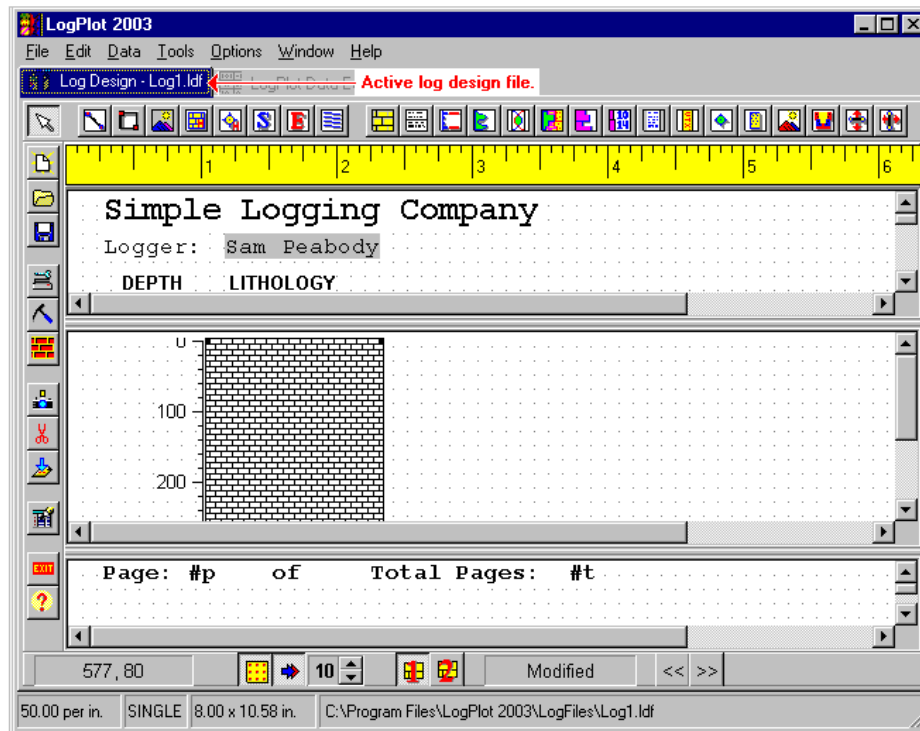
Designing the Log Body (page 48).

General Introduction

Accessing the Log Designer

Log Designer2003 is built into LogPlot2003. To access the Log Designer screen, follow these steps:

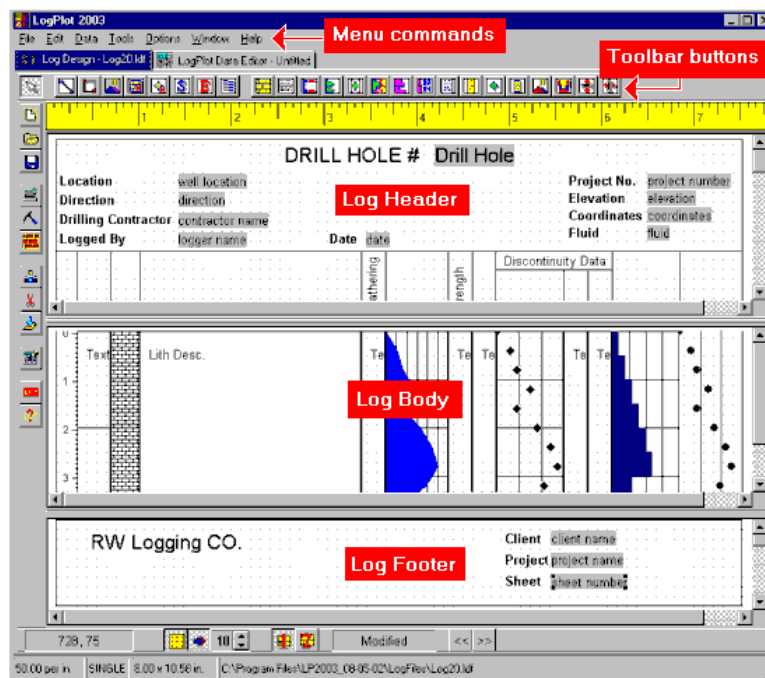
1. Start up the LogPlot program if necessary.
2. Click on the Log Designer tab to bring that window to the front.



The program will display the Log Designer window, with the current or default log design displayed.

The Log Designer Screen

Before you get into the log format items themselves, you should familiarize yourself with some general design features of the program. The "Design Screen" is your work area: designing logs is simply a matter of "drawing" the desired format items in their appropriate positions on the design screen as if it were a piece of paper. When you open a log format (LogPlot is shipped with many), the program screen will look something like the example shown below. These screen items are summarized below.



- * The **Menu Commands** offer file utilities (saving, printing, etc.), editing utilities (clearing, sending items to the back), and other options (multiple headers, header size, shifting header items).
- * The **Toolbar Buttons** offer the log header and body design items. You simply click on a button, place the associated item in the header or body where you want it, and establish any specific settings that may be required. Toolbar Buttons also offer easy access to other design features such as a reference grid and snap tools (along the bottom) and to file management tools (along the left).
- ! Note that the top and side toolbars can be dragged to other locations in the Design window.
- * The **Log Header** can contain text, wrappable "notes", lines, rectangles, symbols, patterns, and "BMP," "JPG," and "WMF" pictures that are plotted at the top of your log or log page.

- * The **Log Body** can contain patterns, descriptions, scale bars, curves, histograms, text, pattern percent, symbols, fill bars, lines, bitmap, well construction, vertical text, and cross-plotted curve columns.
- * The **Log Footer** can contain the same items as the Header, which are plotted at the base of your log or log page.

Where Do I Start Designing?

With the LogPlot program started and a Log Designer window open, follow these steps to either modify an existing log design OR create a new design from scratch.

Modify an Existing Log Design

1. Open the existing design: Select the **File** menu from the Log Designer menu. Select the **Open** command, and select the design (LDF file) you wish to modify.

See the log samples shipped with the program (page 205).

2. Establish the printer and page size if necessary (page 20).
3. Add items to / delete items from the log body, and save the design (page 48).
4. Add items to / delete items from the log header and footer, and save the design (page 23).

Create a New Log Design

1. Create the new design: Select the **File** menu from the Log Designer menu. Select the **New** command, and assign the new design a name (page 19).
2. Establish the printer and page size if necessary (page 20).
3. Add items to the log body, and save the design (page 48).
4. Add items to the log header and footer, and save the design (page 23).

Log Design Files (LDF)

Log Design Files Introduction

Log designs that you create in the Log Designer are stored on disk as binary "Log Design Files" with the ".LDF" file name extension. This is the only file type that the Log Designer window creates, opens, or saves. (By contrast, compiled logs, displayed in the Plot window can be saved or exported in a variety of formats.)

An LDF file can be thought of as the "blueprint" for the log. It contains the layout for the log header, body, and footer. This will tell the LogPlot program where all of your different data types will be plotted.

The current ".LDF" file displayed in the Log Designer is established as the default Log Design to be used in LogPlot.

Create a New Design File

To create a new, blank work screen for designing a log format:

1. Access the Log Designer window as necessary.



2. Select the **New** command from the Log Designer's **File** menu, or the New-File toolbar button.

Since the Log Designer permits only one design to be open at a time, if an existing LDF file is open and has not been saved when **New** is selected, the program will ask you whether you wish to save it. Answer as appropriate.

The program will then display a window in which you must give the new log design a name.

3. In the File Name prompt type in the name to assign the new design you will be creating. Log Designfiles must be given the file name extension ".ldf."
4. Click the **Save** button.

The Log Designer screen will be cleared, displaying a new, blank design, with the name you entered displayed in the title bar at the top of the window.

! This new file name will become the default LDF file established in LogPlot.

Open a Log Design File

To open an existing log design file (.LDF) that has been saved on disk:

1. Access the Log Designer window as necessary.



2. Select the **Open** command from the Log Designer **File** menu, or the Open-File toolbar button, shown above. The program will display the Open Log Design dialog box.

In this window, there may also be displayed a "preview" of the currently-highlighted log design file. These previews can be created automatically by the program (see Saving Design Previews, page 20), and can be scaled smaller for a better view.

3. Select the log design file that you wish to view by highlighting it and choosing the **OK** button.

! The Log Designer creates and opens files in the log design format (.ldf) only.

! The Log Designer permits only one LDF file to be displayed at a time.

! The design displayed in the Log Designer window is always established as the default LDF file in LogPlot.

Once you have opened a design file, you may edit it and save the changes (**Save** command) or save the changes under a new file name (**Save As** command). You may also print the design file.

Save Log Design Files

To save any changes you have made to a log design file (.LDF) that is displayed on your screen:



1. Select the **Save** command from the Log Designer's **File** menu, or the Save-File toolbar button.

The program will save the current version on disk, under the same name.

To save a log design file (.LDF) that is displayed on your screen *under a different file name*:

1. Select the **Save As** command from the **File** menu.
2. Enter the new name to assign to the design file, accessing necessary drives and/or directories, and choose **OK**.

! The Log Designer permits only one LDF file to be open at any time.

! The LDF file displayed in the Designer screen is automatically set as the default LDF file in LogPlot.

Save Design Previews

Any time that you select the **Save** or **Save As** commands from the Log Designer's **File** menu, or click on the Save toolbar button, the program will save any changes you have made in the current log design on disk, under the existing or specified LDF file name.

It will also automatically save a "preview" of the log design, using the JPEG (".JPG") graphic format. The JPEG preview will be assigned the same file name as the LDF file (with the ".JPG" extension), and will be stored in the same folder on your computer as the LDF file. For example, when the "Lithology1.ldf" file is saved, the preview file "Lithology1.jpg" is created or updated automatically.

The preview file is displayed within the Log Designer's Open-File dialog box, making it easier to determine which design file you wish to open.

The preview file is also displayed within Log Plot when you select the LDF file to establish as default.

See Program Settings (page 198) for information about de-activating the LDF previews.

Set the Log's Page Size

The size of the page that your log is compiled onto is defined within the Log Designer, and it is stored in your log's design (LDF file), so that you know how much horizontal space you have for your design items. Vertical dimensions of the paper won't be as much of an issue in the log design phase since it isn't until you actually compile your data into a log that the paper length will determine log pagination along the length of the well. One exception to this is the need to know page length if you are designing detailed headers and footers and want to be sure to leave room for the log's body items!

Of course, page size is intimately tied to the printer you have selected, since single-sheet printers with small paper will restrict you to small pages, and banner-capable printers will allow almost unlimited-length pages.



1. To set the log's page size, and to select the default printer, click on the **Page + Print Setup** button on the Log Designer toolbar. Or, you can choose the **Page + Print Setup** command from the Designer's **File** menu.

At the top of the displayed window you will see a summary of the current printer information: the printer name, the paper size, the printable area on that paper for that printer. Note that if the printable width is greater than the printable length, the paper orientation is probably set to Landscape rather than Portrait.

2. To select a different printer (either for purposes of composing the log design or for actual printing), to change paper size, or to adjust paper orientation, click on the **Printers** button. You will see a standard Windows Print Setup dialog box.

To change the printer name, click on the down-arrow on the right side of the **Name** prompt to select a different printer that's installed on your computer. If you don't see the printer you wish to use, you'll need to return to Windows to handle that, using the **Start / Settings / Printers** option.

To change the paper size, select one of the options in the **Paper Size** list. To change orientation, click the **Landscape** or **Portrait** button as appropriate.

Note: Do not select **Landscape** paper orientation if you wish to plot in banner mode on a continuous-paper printer.

Other printer settings can be accessed using the **Properties** button.

Click **OK** in the Print Setup dialog box to return to the Log Designer page setup window.

Back at the Log Designer Page Setup window, note that there will be updated page dimensions and printable length and width dimensions if you made any of the changes listed above.

In the bottom portion of the dialog box, you will see the current length and width dimensions for your log page. If any of the dimensions are shown in red, then they exceed the available dimensions for the page as shown at the top of the window.

3. To re-calculate the LogPlot page size based on the current printer, click the **Set Default Size** button.
4. If you wish to change the units from inches to centimeters or vice versa, click the appropriate radio button. This will update the Printer Info (top) automatically. Be sure to click the **Set Default Size** button again to re-computer the new Log Designer page size.

! The units that you select here will also determine the units of the ruler displayed at the top of the Log Designer window.

5. When the printer and page settings are established to your satisfaction, click **OK** to return to the Log Designer window.

The program will update the window to reflect the horizontal dimensions of the page.

Print Log Design Files

To print your log design, follow these steps:

1. Access the Log Designer window as necessary.
2. Select the **Print** command from the Log Designer **File** menu.

The program will display the standard dialog box for the printer that is currently selected within Windows as default.

3. Make the necessary settings (copies, resolution, etc. as appropriate for your printer) and choose **OK** when you are ready to print.

The program will output the current log design to the selected printer. This will include the design entities only, no actual data will be printed. (By contrast, see Printing Your Log, page 175, for information about printing compiled logs with data.)

! Note that it will print all of the header entities, even if they are hidden on the screen (at a Header Size of 1x, for example).

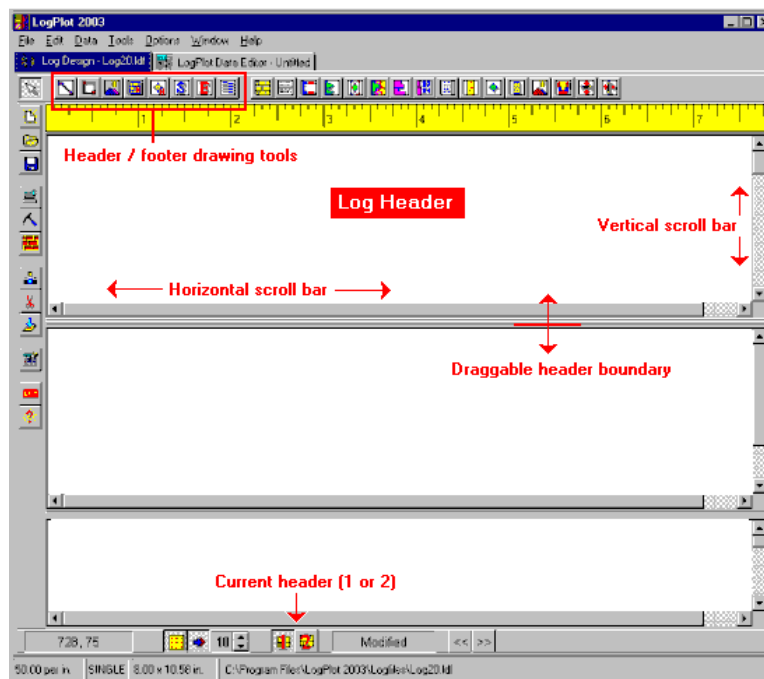
! Note also that if there is a second header included in the log design, that page will be printed as well.

Designing the Log Header and Footer

Log Header Introduction

Log headers are plotted at the top of a log and typically contain textual information (company name, date, etc.), column labels, company logos, etc. Some of the header text is static or unchanging, while some (such as a date) change from log to log. A new Notes tool displays text that wraps.

Within the Log Designer work screen, the header is completely separate from the log body, and has a different set of command buttons.



The log header can be up to approximately 10.5 inches in length. You may use the scroll bars provided at the bottom and along the right side of the header to view portions of the header than you cannot currently see. You may also change the displayed size of the header work area by positioning your pointer on the boundary bar at the bottom of the header and dragging it up or down as appropriate.

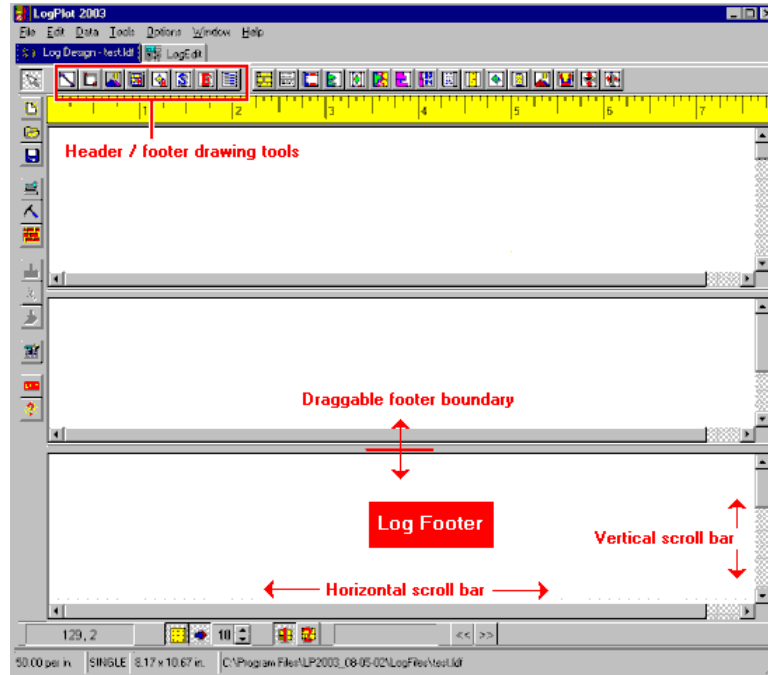
When you invoke the **New** command (**File** menu) to create a new log design, the program will display a blank design screen. You may then insert a log header item by selecting one of the header toolbar buttons and placing the item in the log header section. You may use the displayed ruler for horizontal placement reference.

! Items in the log header cannot be moved into the log body and vice-versa. However, header items can be copied into and from the log footer.

Log Footer Introduction

Log footers are plotted at the bottom of a log, or at the bottom of each log page. Like the header, they can contain textual information (company name, date, etc.), column labels, company logos, etc. The footer text can be static (unchanging) or can change from log to log. Log footers can also contain the new Notes tool for wrapping text.

Within the Log Designer work screen, the footer's work area is at the bottom of the window. It shares the same command buttons as the log header.



The log footer can be up to 5 inches in length. You may use the scroll bars provided at the bottom and along the right side of the footer to view portions of the footer than you cannot currently see. You may also change the displayed size of the footer work area by positioning your pointer on the boundary bar at the top of the footer and dragging it up or down as appropriate.

Header / Footer Mechanics

Header 1 versus Header 2

The Log Designer permits you to design two different headers for each log: "Header 1" is plotted on the first page of the log, and presumably contains more elaborate information that does not need to be duplicated on subsequent pages of the log. "Header 2" can be plotted on the second and subsequent pages of a log, and can contain an abbreviated form of the primary header. You may toggle between

these header views using the **Header 1** and **Header 2** commands (**Options** menu), or using the buttons on the toolbar at the bottom of the screen.



! It is not required that you have a second header design. If Header 2 is left blank, the program will assume that Header 1 should be used on all pages, if you have requested a header on all pages.

! Note also that LogPlot permits you to omit headers entirely from pages 2+ of your log.

Header and Footer Scaling

During the compiling and plotting of the log in LogPlot, the header and footer portions of the log are not affected by changes in the vertical log scale - they always remains the same size no matter how condensed or elongated the log body is.


If you need to change the size of the text characters themselves in the header or footer, you can do this by adjusting the font size in the Log Designer. This entails double-clicking on the text item itself, clicking on the Font button in that item's Setup dialog box, and changing the font size there.

To change the size of any imported WMF, JPG, or BMP pictures in the log header or footer, you must resize the picture itself in the Log Designer. (See Moving or Resizing Header/Footer Items, page 30.)

Changing the Header or Footer Viewing Size

You can change how much of the header or footer is visible at any time on the screen by dragging the horizontal boundary line that divides the header or footer from the log body.



1. Click on the Pointer tool to select it.
2. Position the pointer on the header boundary or footer boundary and watch for the cursor to change to: 
3. Depress the mouse button to "grab" the boundary line.
4. With the mouse button depressed, drag the header or footer boundary up or down as desired.

! The actual size of the header or footer is not changed using this process - instead, more or less of it is **shown** on the design screen. You can, for example, have a very long header of which only a portion is visible within the design screen. When compiled with data in LogPlot, however, the entire header shows up.

If the header or footer boundary will not move, it may be that one of the design areas has reached a minimum display size. Try increasing the size of the entire Log Designer window, or making the log body portion of the screen shorter.

The physical size of the header and footer is limited horizontally by the printer and page size you have selected (**File** menu / **Print + Page Setup** command).

Vertically, the header can be up to about 10.5 inches (26.7 cm or 1000 screen pixels) in length, and the footer 5 inches (12.7 cm or 480 screen pixels). Any unused space *below* the last header and footer item will be truncated. Any white space above the header and footer will not be truncated.

Tips on Designing a Full Page Header

If you want a full page header for the first page of the log, here are some tips:

1. Create the long header on Header 1, and use the full extents (y-coordinate of approximately 1000).
2. Create a Header 2 which will plot on all other pages of the log. This header should be significantly smaller than Header 1.
3. In LogPlot, establish the following header settings (**Options / Log Settings**):

Header + Footer on Every Page: YES (checked). This assures you that Header 2 will be used.

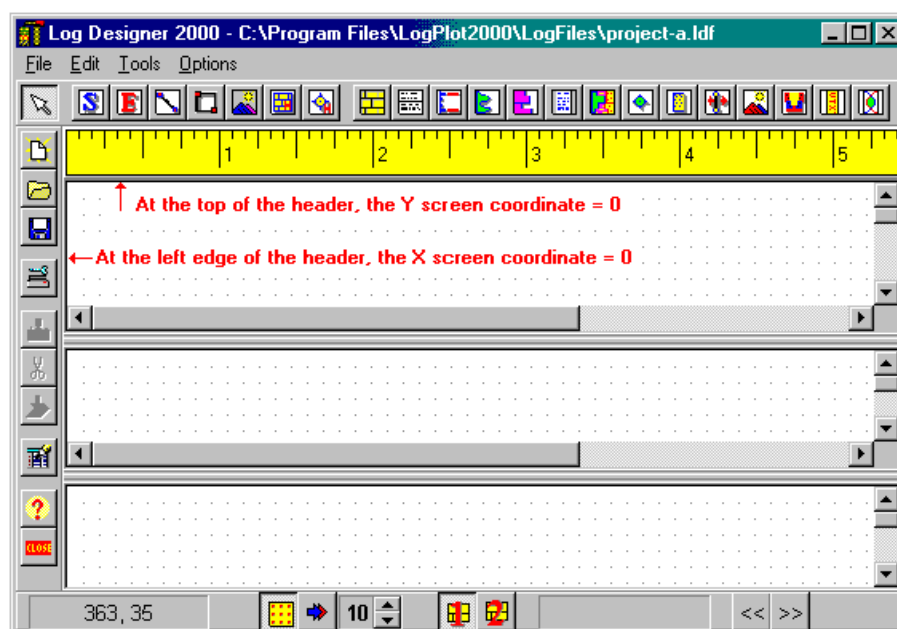
Margin Between Header/Footer and Log Body: This you will need to experiment with, based on the full length of the Header 1 and the size of the paper. Note that this setting will also affect the margin below Header 2 on pages 2+ of the compiled log.

Header Coordinates

The placement of any header item is stored in terms of horizontal (x) and vertical (y) screen pixels.

The horizontal coordinates start at 0 along the left edge of the screen and increase to the right. The horizontal range of the design page is dependent upon the currently selected printer and page size and orientation (**File / Page + Print Setup** command), since a printer with 15" paper will accept wider logs than one with 8.5" paper.

The vertical coordinates are expressed as pixel coordinates *relative to the top of the paper or design screen*. At the top of the header, the y-coordinate is 0. It extends down to a coordinate of 1000 pixels.



You can turn on a reference grid at a user-defined pixel density to aid you in placing header items. You can also activate "snapping" of items to that grid.

The entirety of the header may not be visible at one time; you may use the scroll bars to view hidden portions, or you may increase the size of the visible header window.

You can change the units that are displayed in the reference ruler by selecting the **Inches** versus **CM's** option in the printer and page settings (**File / Page + Print Setup** command). If you change the units in the page setup, be sure to re-compute the default page size.

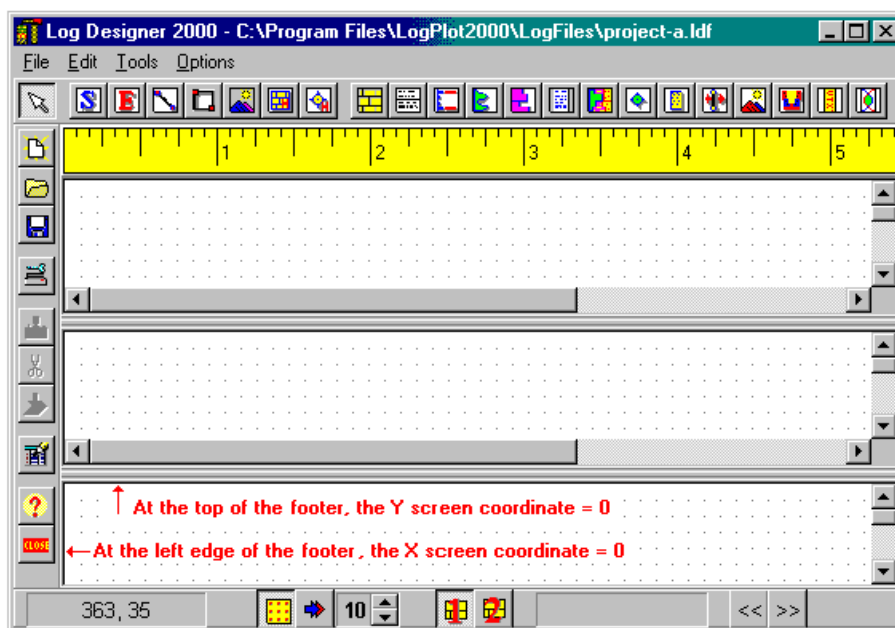
! You may use as much or as little of the available header space as you wish. When you compile your data into a log design within LogPlot, the program will start the log body wherever the header ends - it will not include the blank space *below* the lowest header item. (LogPlot does offer a header and footer margin setting; see **Options / Log Settings**.) LogPlot will, however, include any designated white space *above* the header when the log is compiled.

Footer Coordinates

Like the header, the placement of any footer item is stored in terms of horizontal (x) and vertical (y) screen pixels.

The horizontal coordinates start at 0 along the left edge of the screen and increase to the right. The horizontal range of the design page is dependent upon the currently selected printer and page size and orientation (**File / Page + Print Setup** command), since a printer with 15" paper will accept wider logs than one with 8.5" paper.

The vertical coordinates are expressed as pixel coordinates *relative to the top of the footer*. At the top of the footer, the y-coordinate is 0. It extends downward about 500 pixels (5 inches).



You can turn on a reference grid at a user-defined pixel density to aid you in placing footer items. You can also activate "snapping" of items to that grid.

The entirety of the footer may not be visible at one time; you may use the scroll bars to view hidden portions, or you may increase the size of the visible footer window.

You can change the units that are displayed in the reference ruler by selecting the **Inches** versus **CM's** option in the printer and page settings (**File / Page + Print Setup** command). If you change the units in the page setup, be sure to re-compute the default page size.

! You may use as much or as little of the available footer space as you wish. Any blank space below the lowest footer item will not be included in the compiled log. The margin between the log body and the footer can be adjusted in the **Options / Log Settings** window.

The Reference Grid and Snapping Items

To aid you in placing your design entities, the Log Designer offers a reference grid. If activated, the program will display a grid of dots in the header, footer, and log body portion of the design screen. The resolution of the grid (e.g. how many pixels apart the dots are) can be determined by you.

FIELD BOREHOLE LOG

PROJECT NUMBER:	1991-66	FIELD BOOK
PROJECT NAME:	TAC	TOTAL DEP
LOCATION:	OVER THE RAINBOW	GROUND SI
DRILLING CO:	McEACHRAN & SON	
DRILLING METHOD:	AIR ROTARY	Depth (ft)
FIELD PARTY:	Minden, Hartley	Time

Reference grid is on

FIELD BOREHOLE LOG


PROJECT NUMBER:	1991-66	FIELD BOOK
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LOCATION:	OVER THE RAINBOW	GROUND SI
DRILLING CO:	McEACHRAN & SON	
DRILLING METHOD:	AIR ROTARY	Depth (ft)
FIELD PARTY:	Minden, Hartley	Time

Reference grid is off

In addition to the display of the reference grid, you can also activate "snapping" to the grid. If activated, when you place a log design entity in the header, footer, or log body, the program will "snap" the item to the nearest grid point. This can make life a little easier when trying to line up design entities.

Note that you can always override the "snapped" coordinates by entering new coordinates in the item's setup dialog box.


How to...


 Turn on the reference grid. See **Help / Contents**, click Index, enter Reference grid.


 Turn on snapping. See **Help / Contents**, click Index, enter Snap to reference grid.

Selecting Items in the Log Header/Footer


How to...

 Select a single item in the log header / footer. See **Help / Contents**, click Index, enter Selecting log items.

 Select multiple items in the log header / footer. See Help as above.

 Select an item using the << and >> buttons. See Help as above.


 Select an item using the Entity List. See Help as above.


 Move an entity to the back. See Help as above.

Moving / Resizing Header / Footer Items

As you design your log header or footer, particularly if you change the header size, you may find it necessary to move all of the items up or down in order to add or delete items. You can do this by moving the items individually, by multi-selecting items and moving them by hand, or you can move *all* them as a block via the **Shift Header Items** command (**Options** menu).

How to...

 Shift header or footer items. See **Help / Contents**, click Index, enter Moving/resizing header/footer items.

 Move or resize individual header / footer items. See Help as above.

Cut-Copy-Paste

The Log Designer permits you to cut or copy and paste individual or multiple log design items. Header items can be copied and pasted within the current header, between Header 1 and Header 2, or into the log footer. Footer items can be copied and pasted in the footer, or into either header. By contrast, log body items can be copied and pasted only within the log body.


! Note:

Either single or multiple items can be, copied, and pasted.

Items can be cut or copied and pasted between log design files (LDF) that are opened at different times in the Log Designer.

You may not drag items between different headers/footer. You must use the cut/copy and paste commands.

How to..

 Cut-paste or copy-paste header/footer items. See Help / Contents, click Index, enter Cut-paste or copy-paste header/footer items.

Header / Footer Items

Header/Footer Item Summary

Here is a summary of the items that you can include in a Log Designer header and footer. Remember that the log header and footer sections share the same tools. The tool buttons are found on the Log Designer toolbar. These items are discussed in the remainder of this section.



Header/Footer Line (page 32) This tool simply plots a line anywhere in the header or footer of the log.



Header/Footer Rectangle (page 33) Use this tool to draw a rectangle anywhere in the header or footer of the log.



Header/Footer Picture (page 35) You may insert a picture (logo, etc.) in a Bitmap format (BMP), JPEG (JPG), or a Windows Metafile format (WMF) into your log header.



Header/Footer Pattern (page 37) The Header/Footer Pattern tool permits you to include a rectangular pattern block in the header or footer, usually to create an index to the lithology patterns used in the log body.



Header/Footer Symbol (page 38) This tool is used to insert a symbol into the log header or footer, usually to create an index to the symbols included in the log body.



Static Text (page 40) "Static Text" is header or footer text that does not change each time you plot a log. It is frequently used to label columns, list the unchanging logging company name, or to serve as a label for changing text entries ("Edit Text"). It can also be used to insert automatic page numbers in the header or footer.



Edit Text (page 43) "Edit Text" is header or footer text that can change, based on what is listed in the data file. This could include dates, client names, well locations, and such.



Static Notes (page 45) "Static Notes" allow you to enter longer text information into the header or footer than is available using the Static Text item. The text will wrap within the space defined for the note block. The text to be plotted is entered into the log design and does not change from log to log.



Edit Notes (page 47) "Edit Notes" are like Static Notes, above, except that the text to be plotted in the block is entered in the data file, so that it can easily change from log to log. These notes might be thought of as wrappable Edit Text labels.

Adding Header/Footer Lines



Use: The **Header/Footer Line** button is used simply to plot a line at any angle, anywhere in the header or footer portion of the log.

How it works: There are no corresponding data file commands.

LogPlot data tab example: None. These log header lines have no accompanying data file commands.

Design file example(s): The format file "logfiles\enviro-geotech6.ldf" contains a fairly detailed header including numerous header lines.

How to add / adjust a header/footer line:



1. Select the **Header/Footer Line** button from the Log Designer toolbar.
The pointer will change shape to a "+" for "drawing" the line on the design screen.
2. Place the "+" at the intended location in the header or footer for one of the line's endpoints.
3. Hold the mouse button down and drag until the "+" has reached the second endpoint for the line.
4. Release the mouse button.

The line will be displayed on the screen.

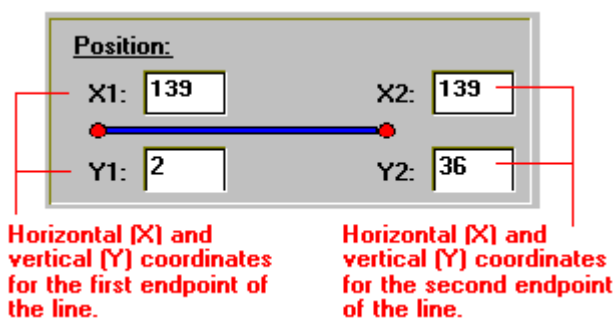
If you need to *change* any of the line characteristics, follow these steps:

1. Double-click on the line, and the program will display the Line Setup dialog box. Or, right-click on the line and choose **Edit Entity**.

! If the line is hard to "grab" with the mouse, you can also access its settings by locating the line in the Edit / View Entity List screen, and then double-click on its listing there.

2. Enter the requested information:

Position: These coordinates determine the placement of the line in the header or footer of the log.



You may change the position of the line by editing these values, or by moving the line itself on the work screen. Remember that the y or vertical coordinates are expressed in coordinates relative to the top of the header or footer.

Options: Click on the displayed box to select the line style (left), line thickness (right), and line color (bottom) in the displayed window. Click **OK** to return to the Header/Footer Line Setup window.

! Note that in the Log Designer view, any text that overlays a filled header or footer rectangle will appear with an opaque white background. This will not appear when the log is compiled.

3. To accept the displayed information, click the **Apply** button. You will see the line displayed on the screen according to your settings. You may continue to adjust the line if necessary, remember to click **Apply** any time you want your changes applied.
4. To close the Line Setup window, click the **Close** button.

If you need to review the settings you established, simply repeat the steps listed under #1 above, and the program will retrieve the dialog box.

Adding Header/Footer Rectangles



Use: The **Header/Footer Rectangle** button is used to plot a rectangle anywhere in the header or footer portion of the log.

How it works: There are no corresponding data file commands.

LogPlot data tab example: None. Header/footer rectangles have no accompanying data file commands.

Design file example(s): The design file "logfiles\enviro-geotech4.ldf" contains a fairly detailed header including numerous lines and rectangles.

How to draw / adjust a header/footer rectangle:



1. Select the **Header/Footer Rectangle** button from the Log Designer toolbar.
The pointer will change shape to a "+" for "drawing" the rectangle.
2. Place the "+" at the intended location for the upper-left corner of the rectangle, in the header or footer portion of the design screen.
3. Hold the mouse button down and drag down and to the right until the "+" has reached the opposite corner point for the rectangle.
4. Release the mouse button.

The rectangle will be displayed on the screen.

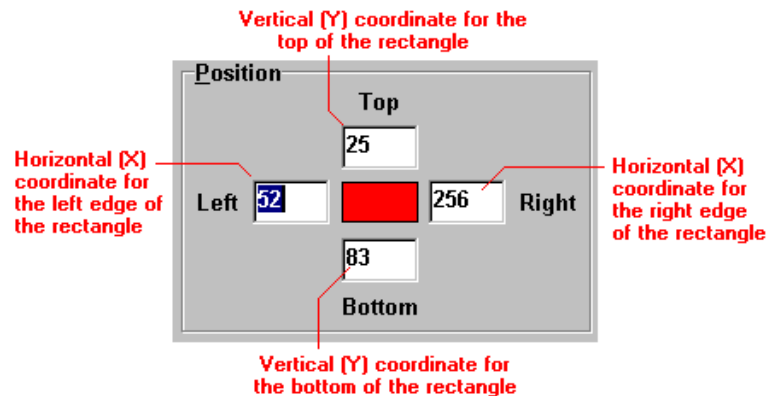
If you need to *change* any of its characteristics, follow these steps:

1. Double-click anywhere on the rectangle, and the program will display the Rectangle Setup dialog box. You can also retrieve the setup dialog box by right-clicking on the rectangle and choosing **Edit Entity**.

! If the rectangle is hard to "grab" with the mouse, you can also access its settings by locating the rectangle in the **Edit / View Entity List** screen, and then double-click on its listing there.

2. Edit the requested information:

Position: These coordinates determine the placement of the rectangle in the header or footer of the log.



You may change the position of the rectangle by editing these values, or by moving the rectangle itself on the work screen. Remember that the y or vertical coordinates are expressed in coordinates relative to the top of the header or footer.

Options: Click on the displayed box to select the line style (left), line thickness (right), and line

color (bottom) in the displayed window. Click **OK** to return to the Header/Footer Rectangle Setup window.

Fill: Insert a check in this box if you want the rectangle to be filled with color. Then click on the color box to the right to select the fill color.

3. To accept the displayed information, click the **Apply** button. You will see the rectangle displayed on the screen according to your settings. You may continue to adjust the line if necessary, remember to click **Apply** any time you want your changes applied.
4. To close the Rectangle Setup window, click the **Close** button.

If you need to review the settings you established, simply repeat the steps listed under #1 above, and the program will retrieve the dialog box. If you need to send the rectangle behind other items in the header or footer, choose the **Edit / Send to Back** command.

Inserting Header/Footer Pictures



Use: The **Header/Footer Picture** button is used to insert a picture into the header or footer of the log. The picture may be in a Bitmap (BMP) format, JPEG (JPG), or a Windows Metafile (WMF) format. This would typically be used to insert a company logo into the log design, but could also be used to insert a picture of a site map, etc.

How it works: There are no corresponding data file commands. Instead, **Header/Footer Picture** simply inserts into the log header or footer the "BMP," "JPG," or "WMF" picture that is selected by the user.

Restrictions: The picture must be in Bitmap (BMP), JPEG (JPG) or Windows Metafile (WMF) format.

LogPlot data tab example: None. These header/footer pictures have no accompanying data file commands.

Design file example(s): Many of the sample design files contain header pictures: enviro-geotech5, 6, and 7 include header or footer bitmaps, geophysical1 and 3 and mining2 and 3 contain header bitmaps. See the Reference section (page 205) for a list of sample logs.

How to insert a picture into the log header or footer:



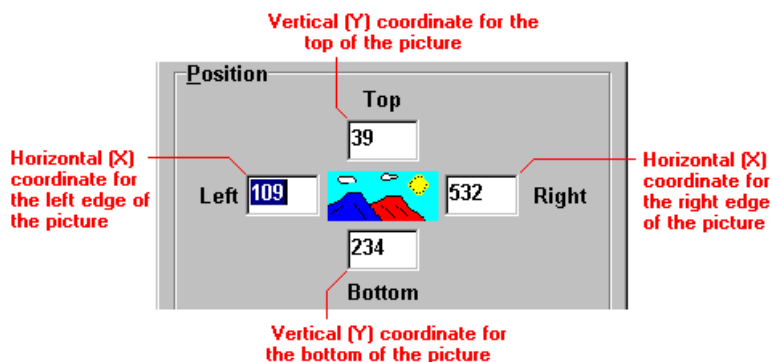
1. Select the **Header/Footer Picture** button from the toolbar.
The program will display a File-Open dialog box on the screen.
2. Type in or select the name of the Bitmap (BMP), Windows Metafile (WMF), or JPEG (JPG) graphic file to be inserted into the header or footer, accessing other drives or folders as necessary.
3. Choose **OK** when you are ready to insert the picture.



The pointer will change shape to a " " for placing the picture.

4. Place the cursor where you wish the upper-left corner of the picture to be, in the header or footer portion of the design screen, and click the left mouse button. The program will display the Setup window.
5. Enter the requested information:

Position: These coordinates determine the placement of the rectangle in the header or footer of the log.



You may change the position of the picture by editing these values, or by moving the picture itself on the work screen. Remember that the y or vertical coordinates are expressed in coordinates relative to the top of the header or footer.

Keep Proportions: Insert a check in this box if you want Log Designer to retain the pictures horizontal-to-vertical ratio when resized, either by editing the coordinates (above) or by resizing the picture on the work screen.

6. To accept the displayed settings, click the **Apply** button. You will see the picture displayed on the screen at the declared location and dimensions. You may continue to adjust the picture settings in the dialog box if necessary, remember to click **Apply** any time you want your changes applied.
7. Click **Close** to close the Graphic Setup window.

If you need to review the settings you established, you can double-click on the picture and the program will display the settings window. Or, you can right-click on the item and select **Edit Entity**, or find the picture in the **View Entity List** and choose the **Load Item** button.

! If the picture that you insert is large, it may exceed the width of the log page, making its resizing "handles" inaccessible. In this case, you will need to use the dialog box **Position** settings, above, to adjust the size of the picture.

Inserting Header/Footer Patterns



Use: The **Header/Footer Pattern** button is used to insert a square or rectangular block into the log's header or footer, filled with the pattern of your choice. This is typically used to build an index to the patterns that will appear in the body of the log.

See the Lithology Pattern Column (page 53) or Pattern Percent Column (page 69) for information about plotting patterns in the *body* of the log.

How it works: There are no corresponding data file commands. Instead, the **Header/Footer Pattern** tool simply inserts into the log header or footer the graphic pattern that you have selected. This pattern block does not automatically link to any lithologic keywords.

LogPlot data tab example: None. These pattern blocks have no accompanying data file commands.

Design file example(s): See the Reference section (page 205) for examples of the log design files shipped with the program.

How to insert a Pattern Block into the Log Header or Footer:



1. Select the **Header/Footer Pattern** button from the toolbar.

The pointer will change shape to a "⌞" (a small square with a cross-hatch pattern). Now it's time to place the block.

2. Place the cursor where you want the upper-left corner of the pattern block to be, in the header or footer portion of the design screen, and click the left button.

The program will display the Header/Footer Pattern Setup window. Here you can choose the pattern to be displayed in the block (and its color and density), adjust the positioning, and include a border.

3. **Select:** To select the pattern to be displayed in the header or footer block, click on the **Select** button, or just click on the pattern block in the middle of the window.

The program will display the Select Pattern window.

To choose a pattern for the block, simply click on one of the displayed patterns. You may use the scroll bars as necessary to view additional patterns. The pattern you have selected will be displayed in the preview box at the top of the window, and its "index number" will be shown in the upper-left part of the window.

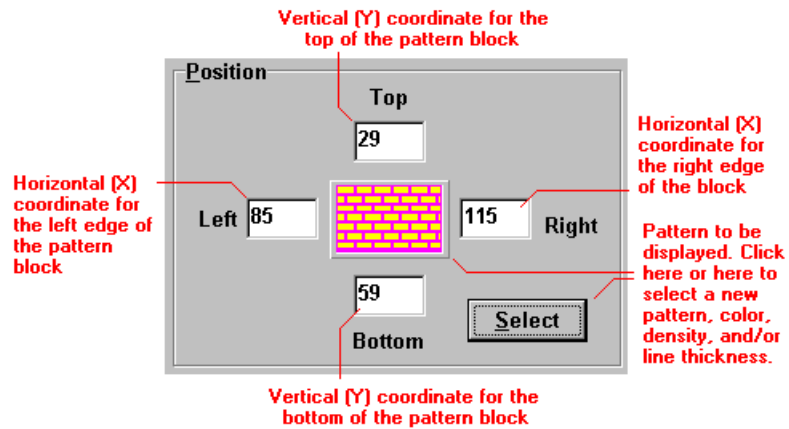
To adjust the density at which the pattern is to be displayed in the header block, click on the up- or down-arrow labeled **Density**. The pattern preview will be updated to reflect the density changes. The greater the value, the less dense the pattern.

Select a foreground and background color for the pattern design by clicking on the appropriate color box and making a selection.

See Viewing and Editing Patterns (page 186) for more information.

When you have established the pattern, color, and density to your satisfaction, click on the **OK** button at the bottom of the Select Pattern window. You will be returned to the Header/Footer Pattern Setup window.

4. **Position:** These coordinates determine the placement of the pattern block in the header or footer of the log.



Remember that the y or vertical coordinates are expressed in coordinates relative to the top of the header or footer.

5. **Frame:** If you want the pattern block to be enclosed in a solid-line box, insert a check in this box.
6. To accept the displayed settings, click the **Apply** button. You will see the pattern block displayed on the screen at the declared location and dimensions, with the selected pattern and colors. You may continue to adjust the pattern block settings in the dialog box if necessary; remember to click **Apply** any time you want your changes applied.
7. Click **Close** to close the Pattern Setup window.

Once it is placed, you can move or re-size the pattern block by dragging it. If necessary, you can adjust the placement of the block using the Setup dialog box settings.

If you need to access its Setup window, you can double-click on the pattern block, right-click on the item and choose **Edit Entity**, or find the pattern block in the **View Entity List** and choose the **Load Item** button.

Inserting Header/Footer Symbols



Use: The **Header/Footer Symbol** button is used to insert a symbol of your choice into the log header or footer. This is typically used to build an index to the symbols that will appear in the body of the log.

See the Symbol Column (page 77) for information about plotting symbols in the *body* of the log.

How it works: There are no corresponding data file commands. Instead, the **Header/Footer Symbol** tool simply inserts into the log header or footer the graphic symbol that you have selected.


LogPlot data tab example: None. These header/footer symbols have no accompanying data file commands.

Design file example(s): See the Reference section (page 205) for a listing of the sample files shipped with the program.

How to insert a Symbol into the Log Header or Footer:



1. Select the **Header/Footer Symbol** button from the toolbar.

The pointer will change shape to a "  " for placing the item.

2. Place the cursor where you wish the upper-left corner of the symbol to be, in the header or footer portion of the design screen, and click the left mouse button.

The program will display the Symbol Setup window. Here you can choose the symbol to be displayed in the header or footer, and adjust the positioning and size.

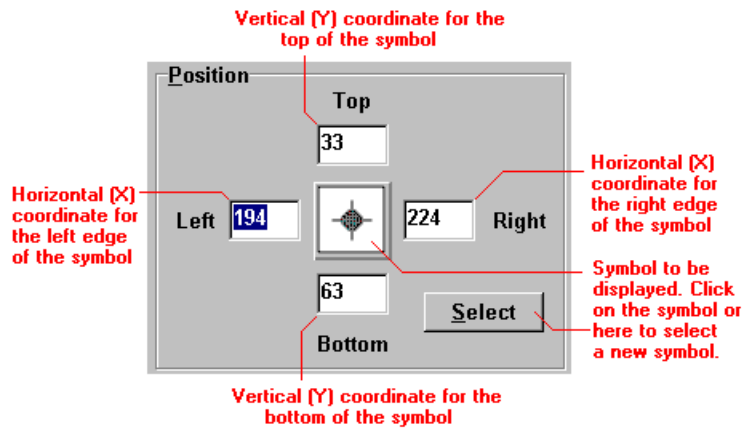
3. **Select:** To select the symbol to be displayed in the header or footer, click on the **Select** button in the Header Symbol Setup window. (Or, just click on the symbol picture itself in the window.) The program will display the Select Symbol window.

To choose a symbol, simply click on one of the displayed symbols. You may use the scroll bars as necessary to view additional symbols. The symbol you have selected will be displayed in the preview box at the top of the window, and its "index number" will be shown in the upper-left part of the window. Click on the color box to select a color for the symbol.

When you have selected the symbol, click on the **OK** button at the bottom of the Select Symbol window.

For more information about the process of viewing, selecting, and editing symbols, see Viewing and Editing Symbols (page 188).

4. **Position:** These coordinates determine the placement of the symbol in the header or footer of the log.



Remember that the y or vertical coordinates are expressed in coordinates relative to the top of the header or footer.

5. **Frame:** If you want the symbol to be enclosed in a solid-line box, insert a check in this box.
6. To accept the displayed settings, click the **Apply** button. You will see the symbol displayed on the screen at the declared location, size, and color. You may continue to adjust the pattern block settings in the dialog box if necessary; remember to click **Apply** any time you want your changes applied.
7. Click **Close** to close the Symbol Setup window.

Once it is placed, you can move or re-size the symbol by dragging it. If necessary, you can adjust the placement of the symbol using the Setup dialog box settings.

If you need to access the Setup window you can double-click on the symbol block, right-click on the item and select **Edit Entity**, or find the symbol block in the **View Entity List** and choose the **Load Item** button.

Adding Static Header/Footer Text



Use: The **Static Text** item is used to plot textual labels in the header or footer portion of the log, text that is constant from log to log. It is frequently used to label columns, list the unchanging logging company name, or to serve as a label for changing text entries (via the **Edit Text** button). It can also be used to insert automatic page numbers in the header or footer, using "hot keys."

How it works: There are no corresponding data file commands. The labels will display in the compiled log as they appear in the log design.

Restrictions: You may include a virtually unlimited number of Static Text items in the header or footer. The Static Text labels can be up to 120 characters in length, including spaces.

LogPlot data tab example: None.

Design file example(s): All of the sample ".LDF" files that were shipped with the program contain examples of Static Text entries; many of them are used as column labels.

The file "\logfiles\enviro-geotech4.ldf" illustrates the use of Static Text items in a slightly different way: as labels for changing "Text Entries" discussed next. In the excerpt shown below, the labels "PROJECT NUMBER:", "PROJECT NAME:", "LOCATION:", etc. are Static Text items that will remain constant each time this log is compiled with data. The accompanying text "1991-66," "TAC," "OVER THE RAINBOW," etc. are Edit Text items whose text is listed in the data file and may change each time this log format is compiled with new data.

Static Text	FIELD BOREHOLE LOG	
PROJECT NUMBER:	1991-66	Edit Text
PROJECT NAME:	TAC	
LOCATION:	OVER THE RAINBOW	
DRILLING CO:	McEACHRAN & SON	
DRILLING METHOD:	AIR ROTARY	
FIELD PARTY:	Minden, Hartley	
GEOLOGIST:	McEachran	
DATE BEGUN:	01/19/96	DATE COMPLETED: 02/14/96

How to add Static Header/Footer Text:



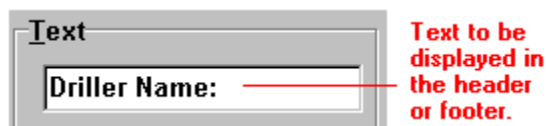
1. Select the **Static Text** button from the Log Designer toolbar.

The pointer will change shape to "S" for marking the desired label position on the design screen.

2. Place the cursor at the intended location in the header or footer for the *upper-left* corner of the label and click the mouse button once. The program will display the Static Text Setup window.
3. Enter the requested text settings:

Position: These coordinates determine the placement of the upper-left corner of the block of static text in the header or footer of the log. The X coordinate represents the horizontal (left to right) placement, and the Y coordinate the vertical placement in screen pixels relative to the top of the header or footer. The defaults reflect the location where the mouse button was clicked (step 2 above). You may change the text placement by editing these values, or by moving the text itself on the design screen.

Text: Enter the actual text to be displayed in the header or footer of the log. The **Static Text** label may be up to 60 characters in length.



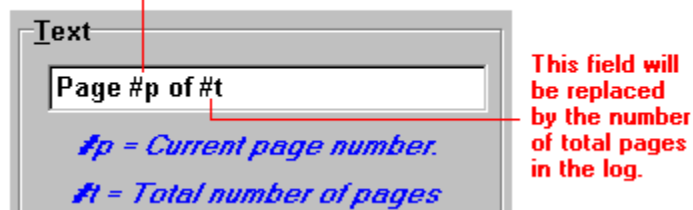
To insert the **current page number** and/or **total number of pages** in the header or footer, use the following "hot keys":

#p Inserts the current page number in the text area when compiled in LogPlot.

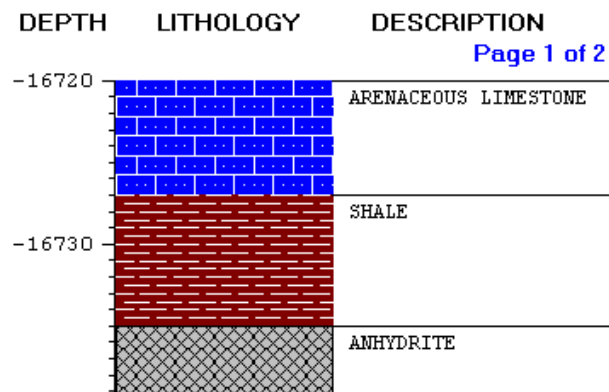
#t Inserts the total number of pages in the text area when compiled in LogPlot.

You can insert these hot keys as Static Text either alone or together, as well as along with regular text:

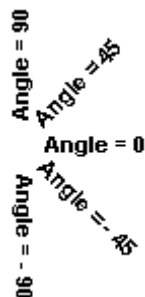
When compiled in LogPlot, this field will be replaced by the number of the current page.



On a compiled log, this might look like this:



Angle: Enter the angle at which the static text label is to be plotted. The text may be plotted at any angle between 90 and -90.



Font: Use this button to access the Font dialog box, where you may set the static text label's font type, size, and color.

Color: Use this button to change the color for the text. This can also be selected using the **Font** button.

4. To accept the displayed information, click the **Apply** button. You will see the text placed in the header or footer in the design window. You may continue to adjust the text if necessary, remember to click **Apply** any time you want your changes applied.
5. To close the Static Text Setup window, click the **Close** button.

The text label you specified will be displayed on the screen at the declared location. If you need to review the settings you established, just double-click on the label and the program will retrieve the dialog box. Or, right-click on the item and choose **Edit Entity**.

Adding Changing Header/Footer Text



Use: The **Edit Text** button is used to plot textual labels in the header or footer portion of the log. It is used for text such as dates, client company names, and other information *that will change* from log to log, project to project. The actual text that is to be plotted for an Edit Text item is declared in the log *data* file (unlike the Static Text entries, with which the text for the label is declared in the log design file).

How it works: During compiling, if the LogPlot program finds an Edit-Text data tab, it will look for **Edit Text** items in the log's design that are flagged with the same names. If it finds a match, the label declared for the item in the data file will be plotted in the header or footer of the log at the **Edit Text** location.


Restrictions: You may include a virtually unlimited number of Edit Text items in the header or footer. The Edit Text labels can be up to 120 characters in length, including spaces.

Design file example(s): The file "logfiles\enviro-geotech4.ldf" uses **Edit Text** items with **Static Text** labels (see Static Text, above, for an example).

How to add changing header/footer text:



1. Select the **Edit Text** button from the Log Designer toolbar.

The pointer will change shape to "Edit Text position on the design screen.

2. Place the cursor at the intended location in the header or footer for the *upper-left* corner of the text and click the mouse button once. The program will display the Edit Text Setup widow.
3. Enter the requested information:

Name: Enter the name for this Edit Text item. Each Edit Text item must have a unique name so that you can refer to each one individually in the data file.

If you have the same Edit Text items on Header 1 and Header 2, they may share the same name, thus requiring only one entry in the LogPlot data file.

Position: These coordinates determine the placement of the upper-left corner of the block of static text in the header or footer of the log. The X coordinate represents the horizontal (left to right) placement, and the Y coordinate the vertical placement in screen pixels relative to the top of the header or footer. The defaults reflect the location where the mouse button was clicked (step 2 above). You may change the text placement by editing these values, or by moving the text itself on the design screen.

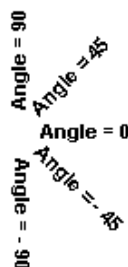
Text: Enter the text to be used as default for this Edit Text entry.



The text you enter here will be the default text for this Edit Text entry in the LogPlot data file.

In this example, "McEACHRAN & SON" will be the text that is displayed for this Edit Text field in the log design screen. In addition, when you use the Create Data File Template command in the LogPlot Data Editor to create a new data file for your log design, the program will suggest this text as the text to be plotted. You may change the default entry as necessary.

Angle: Enter the angle at which the edit text label is to be plotted. The text angle may be any integer between -90 and 90.



Font: Use this button to access the Font dialog box, where you may set the Edit Text label's font type, color, and size.

Color: Use this button to select a color for the text. This can also be established using the **Font** button.

4. To accept the displayed information, click the **Apply** button. You will see the text placed in the header or footer in the design window. You may continue to adjust the text if necessary, remember to click **Apply** any time you want your changes applied.
5. To close the Edit Text Setup window, click the **Close** button.

The text label you specified will be displayed on the screen at the declared location. If you need to review the settings you established, just double-click on the label and the program will retrieve the dialog box. You can also right-click on the label and select **Edit Entity**, or locate the item in the **View Entity List** and click the **Load Item** button.

Adding Static Header/Footer Notes



Use: The Header/Footer Static Notes item displays multi-line, wrappable text in the log header or footer. The text to be plotted is entered into the log design, for text that won't change from log to log (such as company names and addresses). You might think of Static Notes as expanded Static Text labels.

If you want to enter the Notes text in the data file, for text that will change from log to log, use the Edit Notes item.

How it works: There are no corresponding data file commands. The note text will display in the compiled log as it appears in the log design.

Restrictions: There's no limit to the number of Notes entities you can include in your log design. Each Notes item can be comprised of up to 2000 characters in length, including spaces.

Design file example(s): See Enviro-geotech6.lfd for an example of a Static Note used to enter a company name and address.

How to add Static Header/Footer Notes:

1. Select the **Static Notes** button from the Log Designer toolbar.




The pointer will change shape to " " for marking the desired note position on the design screen.

2. Place the cursor at the intended location in the header or footer for the *upper-left* corner of the notes block and click the left mouse button once. The program will display the Note Setup window.
3. Enter the requested text settings:

Position: These coordinates determine the placement of the edges of the note block in the header or footer of the log. The X coordinate represents the horizontal (left to right) placement, and the Y coordinate the vertical placement in screen pixels relative to the top of the header or footer. The defaults reflect the location where the mouse button was clicked (step 2 above). You may change the text placement by editing these values, or by moving/resizing the block itself on the design screen (usually easier, for notes).

Margin: These settings define the top, bottom, left and right margins within the Static Notes block. They are defined in screen pixels (the same units and the **Position** coordinates).

Text: Enter the actual text to be displayed in the header or footer of the log. You will likely press the  button in order to enter more lengthy text into the displayed pop-up window. You can resize the pop-up window if necessary by "grabbing" and dragging the window's lower-left corner.

The Notes can be up to 2048 characters in length.

Text Alignment: Click in the Left, Center, or Right radio button to choose the alignment within the defined block.

Font: Use this button to access the Font dialog box, where you may set the Note's font type, size, and color.

Color: Use this button to change the color for the text. This can also be selected using the **Font** button.

Border: If you want the Notes block to be outlined, insert a check in the **Outline** check-box and choose a line color. If you want the Notes block to be filled with color, insert a check in the **Fill** check-box and choose a fill color.

4. To accept the displayed information, click the **Apply** button. You will see the text placed in the header or footer in the design window. You may continue to adjust the text if necessary, remember to click **Apply** any time you want your changes applied.
5. To close the Note Setup window, click the **Close** button.

! For the Static Notes block, it's possible that the **Position** settings don't allow enough space to see the text once you've clicked **Apply**; you'll either need to modify the **Position** coordinates or close the Note Setup window to resize the block manually.

If you need to review the settings you established, just double-click on the Static Note block and the program will retrieve the dialog box. You can also right-click on the note and select **Edit Entity**, or locate the item in the **View Entity List** and click the **Load Item** button.

Adding Editable Header/Footer Notes



Use: The Header/Footer Edit Notes item displays multi-line, wrappable text in the log header or footer. The text to be plotted is entered into the data file, for text that will change from log to log (such as drilling notes, well descriptions, etc.). You might think of Edit Notes as expanded Edit Text labels.

If you want to enter non-changing notes, use the Static Notes item.

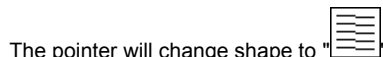
How it works: When LogPlot compiles your data into the log design, it will look in the data file for a Notes tab with the same name as the Edit-Notes item in the design. If it finds a match, then the Notes in the data file will be plotted in the designated location. If it does not find a Notes tab in the data file, no text will be displayed (though the notes block itself will if outlined with a border or filled with a solid color).

Restrictions: There's no limit to the number of Notes entities you can include in your log design. Each Notes item can be comprised of up to 2000 characters in length, including spaces.

How to add editable header/footer notes:



1. Select the **Edit Notes** button from the Log Designer toolbar.




The pointer will change shape to " " for marking the desired note position on the design screen.

2. Place the cursor at the intended location in the header or footer for the *upper-left* corner of the notes block and click the left mouse button once. The program will display the Note Setup window.
3. Enter the requested text settings:

Name: Enter the name for this Edit Note item. Each Edit Note item must have a unique name so that you can refer to each one individually in the data file.

Position: These coordinates determine the placement of the edges of the note block in the header or footer of the log. The X coordinate represents the horizontal (left to right) placement, and the Y coordinate the vertical placement in screen pixels relative to the top of the header or footer. The defaults reflect the location where the mouse button was clicked (step 2 above). You may change the text placement by editing these values, or by moving/resizing the block itself on the design screen (usually easier, for Notes).

Margin: These settings define the top, bottom, left and right margins within the Notes block. They are defined in screen pixels (the same units and the **Position** coordinates).

Text: Enter the text to be used as **default** for this Edit Notes entry. You will likely press the  button in order to enter more lengthy text into the displayed pop-up window. You can resize the pop-up window if necessary by "grabbing" and dragging the window's lower-left corner. Notes can be up to 2041 characters in length.

What is "default" text? The text you enter will be displayed for this Notes field in the log design screen. In addition, when you use the **Update Data Template from Log Design** or **Create New Data Template** commands, the program will suggest this text as the text to be plotted. You may change the default entry as necessary.

Text Alignment: Click in the Left, Center, or Right radio button to choose the alignment within the defined block.

Font: Use this button to access the Font dialog box, where you may set the Note's font type, size, and color.

Color: Use this button to change the color for the text. This can also be selected using the **Font** button.

Border: If you want the Notes block to be outlined, insert a check in the **Outline** check-box and choose a line color. If you want the Notes block to be filled with color, insert a check in the **Fill** check-box and choose a fill color.

4. To accept the displayed information, click the **Apply** button. You will see the text placed in the header or footer in the design window. You may continue to adjust the text if necessary, remember to click **Apply** any time you want your changes applied.

! For the Notes block, it's possible that the **Position** settings don't allow enough space to see the text once you've clicked **Apply**; you'll either need to modify the **Position** coordinates or close the Note Setup window to resize the block manually.

5. To close the Note Setup window, click the **Close** button.

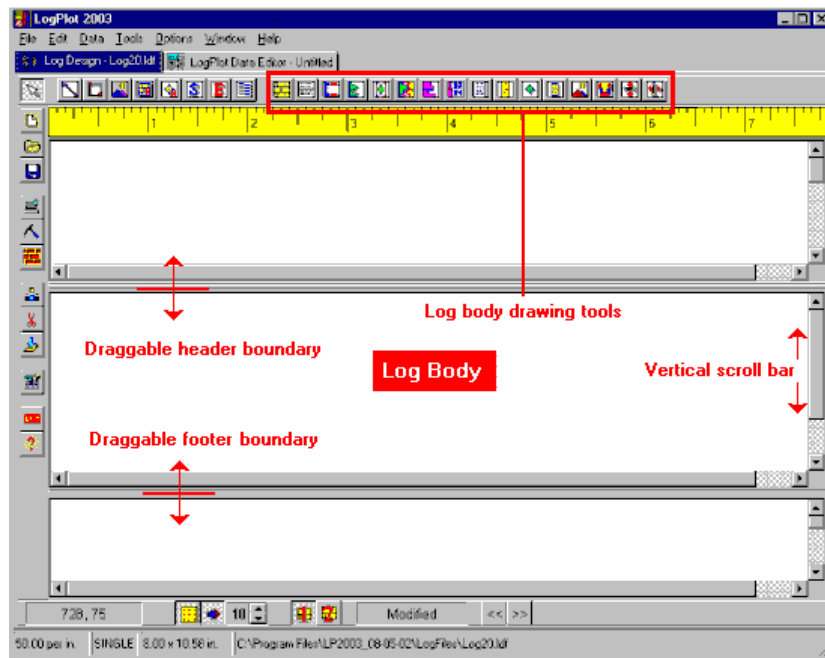
If you need to review the settings you established, just double-click on the Note block and the program will retrieve the dialog box. You can also right-click on the note and select **Edit Entity**, or locate the item in the **View Entity List** and click the **Load Item** button.

Designing the Log Body

Log Body Introduction

The body of the log is displayed in the middle portion of the Log Designer screen, and is where the quantitative, descriptive, and other data stored in your data file will get plotted during log compilation in the LogPlot program. Although the log body is a fixed size in the Log Designer, its vertical scale can be varied by the user within the LogPlot program.

Within the Log Designer work screen, the log body is completely separate from the header and the footer, and has a different set of command buttons.



When you create a new log design (**New** command, **File** menu), the program will display a blank design screen. You may then insert a log body item by clicking the appropriate toolbar button and placing the component in the log body section. You may use the displayed ruler for placement reference.

! Items in the log header or footer cannot be moved into the log body and vice-versa.

Log Body Mechanics

Log Body Coordinates

The placement of any log body item is stored in terms of horizontal screen pixels.

! Unlike the log header and footer, the log body items do not have any vertical placement since they will extend the length of the log when it is compiled.

The horizontal coordinates start at 0 along the left edge of the screen and increase to the right. The horizontal range of the design page is dependent upon the currently printer and page size and orientation (**File / Page + Print Setup** command), since a printer with 15" paper or at landscape orientation will accept wider logs than one with 8.5" paper or portrait orientation.

You can turn on a reference grid at a user-defined pixel density to aid you in placing log body items. You can also activate "snapping" of items to that grid.

You can change the units that are displayed in the reference ruler by selecting the **Inches** versus **cm's** option in the printer and page settings (**File / Page + Print Setup** command). If you change the units in the page setup, be sure to re-compute the default page size.

The Reference Grid and Snapping Items

To aid you in placing your design entities, the Log Designer offers a reference grid. If activated, the program will display a grid of dots in both the header/footer and log body portion of the design screen. The resolution of the grid (e.g. how many pixels apart the dots are) can be determined by you.

In addition to the display of the reference grid, you can also activate "snapping" to the grid. If activated, when you place a log design entity in the header/footer or log body, the program will "snap" the item to the nearest grid point. This can make life a little easier when trying to line up design entities.

Note that you can always override the "snapped" coordinates by entering new coordinates in the item's setup dialog box.

How to...



Turn on the reference grid. See **Help / Contents**, click Index, enter Reference grid.



Turn on snapping. See **Help / Contents**, click Index, enter Snap to reference grid.

Selecting Items in the Log Body

How to...



Select a single item in the log body. See **Help / Contents**, click Index, enter Selecting log items.



Select multiple items in the log body. See Help as above.



Select an item using the << and >> buttons. See Help as above.



Select an item using the Entity List. See Help as above.

Moving or Resizing Log Body Components

When you place a log body item in your log design, the program will align the left side of the item where you placed the icon. If you have activated "snapping," the program will adjust the placement of the item to the nearest grid point.

The column will be inserted at a pre-defined size. You may change not only the location of the column but also the width of the column using two methods:

- * **Dialog box:** Each log body item has characteristics that can be set via a dialog box, which is displayed automatically when the item is first placed, and which can be retrieved any time thereafter by double-clicking on the item, by right-clicking on the item and selecting **Edit Entity**, or by double-clicking on the item in the **Edit / View Entity List** window. Within the dialog box, there are

"coordinate" edit boxes that display the current horizontal coordinates for the item. You may change the horizontal placement of the log item and/or the width of the item by editing these coordinates.

- * **Manually:** A much easier way to reposition or change the width is with your mouse on the design screen itself. You may select items individually or in groups for moving.

How to...



Move log body items. See **Help / Contents**, click Index, enter Moving log body items.



Resize log body items. See Help as above.

Cut-Copy-Paste

The Log Designer permits you to cut or copy and paste individual or multiple log design items. Header items can be copied and pasted within the current header or between Header 1 and Header 2. Log body items can be copied and pasted only within the log body.



Notes:

Either single or multiple items can be cut, copied, and pasted.

Items can be cut or copied and pasted between log design files that are opened at different times in the Log Designer.

How to...



Cut-paste or copy-paste log body items. See **Help / Contents**, click Index, enter Cut-paste or copy-paste log body items.

Log Body Scaling

As you design the body portion of your log, the components will be shown at a fixed size vertically. However, when you compile your data into the log design in the LogPlot program, you may vary the vertical scale in the **Options / Log Settings** dialog box. The body of your log may extend over several pages.

Changing the horizontal size of a log body item is done by "stretching" or "shrinking" the item on the design screen itself, or by changing the item's coordinates in its dialog box.

The horizontal limits to the log's design is determined by the printer and page size you have selected (**File / Page + Print Setup**).

Log Body Items

Log Body Item Summary

Here is a summary of the items that you can include in the body of your log. These items are discussed in the remainder of this section.



Lithology Pattern Column (page 53) Contains graphic patterns that are associated with keyword declarations. The column would typically represent lithology type, but could also contain mineralization, fossilization, and other patterns.



Lithology Description Column (page 54) Contains textual descriptions that are listed in your data file on a Lithology tab. The patterns for the declared description keywords will be plotted in the associated Lithology Pattern Column, if any.



Scale Bar (page 56) Notes depths or elevations down the log.



Curve Column (page 58) Plots quantitative data as a point-to-point curve (line, symbol, filled, block, etc.)



Cross Plot Curve Column (page 66) Plots two sets of curve data, with overlapped regions filled with pattern and/or color.



Pattern % Column (page 69) Displays up to 20 lithology patterns in a column, based on component percentages.



Histogram Column (page 70) Plots quantitative data as a histogram bars.



Histogram Value Column (page 73) Plots histogram labels next to/overlying a Histogram column.



Text Column (page 74) Plots text that is not associated with a lithologic pattern. This could include sample numbers, soil classifications, general comments, etc.



Vertical Text Column (page 76) Plots text vertically in the body of the log, between user-declared depths. This is commonly used to indicate stratigraphic or geologic age groupings.



Symbol Column (page 77) Plots specific symbols, such as water level, at user-declared depths.



Fillbar Column (page 78) Fills user-declared intervals with a specific pattern, often used to note core samples or qualitative information ("good porosity", etc.).



Bitmap Column (page 79) Plots Windows Bitmap (BMP) or JPEG (JPG) pictures in the body of the log.



Well Construction Column (page 81) Illustrates the structure of the construction materials in the body of the log.

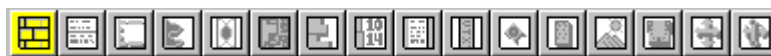


Horizontal Log Body Line (page 83) Plots horizontal lines across a portion of or the entire log, at user-declared depths and/or at regular depth intervals.



Vertical Log Body Lines (page 85) The Line button is used simply to plot a vertical line anywhere in the body of the log.

Adding a Lithology Pattern Column



Use: A Lithology Pattern Column is designed to contain graphic patterns that are associated with keyword declarations.

How it works: As the LogPlot program compiles your data file, it will locate keywords listed in a Lithology data tab, scan the "keyword table" for these keywords and, if found, plot the associated *pattern* for that interval in the Lithology Pattern Column that has the same name. The text *descriptions* themselves will be plotted in the Lithology Description Column on the log.

LogPlot2003 contains a new tool for plotting Interbedded layers inside this column. See the Interbed data tab (page 116).

! It is *not* required that each Lithology Pattern Column have an associated Description Column.

Data Tab: Lithology patterns are linked to data entered into a Lithology tab.


Log design example(s): Most of the sample "LDF" files shipped with the program contain Lithology Pattern Columns; you may refer to "\logfiles\mining2.ldf" (and its associated data file "mining2.dat") for an example of the use of *multiple* pattern columns.

How to create a lithology pattern column in a log design:

1. Access the Log Designer window.



2. Select the **Lithology Pattern Column** button from the toolbar.

The pointer will change shape to a . Now it's time to place the column on the design screen.

3. Place the lithology cursor where you wish to position the column's left edge and click the left mouse button.
4. Enter the requested information:

Name: Enter the name for this Lithology Pattern column. Each pattern column item must have a unique name so that you can refer to each one individually in the data file. The name can be up to

60 characters in length, including spaces.

The NAME identifies the lithology pattern column (you may have more than one) AND matches it with its associated Lithology Description column, if any.

Position: These coordinates determine the horizontal placement of the Lithology Pattern column in the body of the log. You may change the column's position by editing these values, or by moving or resizing the column on the design screen itself. Remember that the horizontal coordinates are expressed in screen pixels relative to the left edge of the design screen.

Frame Column: If this setting is activated (with a check-mark) the program will enclose the column in a solid line frame. This will probably only be noticeable in areas where no lithologic patterns are displayed.

5. To accept the displayed information, click the **Apply** button. You will see the Lithology Pattern column placed in the design screen filled with a brick pattern. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Lithology Column Setup window, click the **Close** button.

If you need to review the settings you established, just double-click on the column (or right-click and choose **Edit Entity**) and the program will retrieve the dialog box. You may reposition or resize the column either manually or using the Setup dialog box settings.

Adding a Lithology Description Column



Use: A Lithology Description Column is designed to contain textual descriptions that are listed in a Lithology tab in your data file. The patterns for any declared description keywords will be plotted in the associated Lithology Pattern Column, if any.

How it works: As the LogPlot program compiles your data file, it will identify keywords listed within the lithologic descriptions, scan the active "keyword table" for these keywords and, if found, plot the associated pattern for that interval in the Lithology Pattern Column that has the same name. The keyword and/or any extended text descriptions will be plotted in the Lithology Description Column on the log.

Text that *is not* to be associated with lithologic patterns is designed with the Text Column tool.

! It is *not* required that each Lithology Description Column have an associated Pattern Column.

LogPlot data tab: Lithology descriptions are linked to data entered into a Lithology tab..


Log design example(s): Most of the log designs shipped with the program contain Lithology Description Columns. You might, however, refer to "logfiles\mining2.ldf" (and its associated data file "mining2.dat") which contains a single Description Column and multiple Pattern Columns.

How to create a lithology description column in a log design:

1. Access the Log Designer window.



2. Select the **Lithology Description** button from the toolbar.

The pointer will change shape to a ; you may now place the column on the design screen.

3. Place the description cursor where you wish to position the column's left edge and click the left mouse button.
4. Enter the requested information.

Name: Enter the name for this Lithology Description Column. Each description column item must have a unique name so that you can refer to each one individually in the data file. The name can be up to 60 characters in length, including spaces.

Name:

The NAME identifies the description column (you may have more than one) AND matches it with its associated Lithology Pattern column, into which the keywords' patterns will be plotted.

! If you want the LogPlot program to link the information in this Description Column with patterns to be plotted in a Lithology Pattern Column, then the two columns must share the same name!

Position: These coordinates determine the horizontal placement of the Lithology Description Column in the body of the log. You can change the column's position by editing these values or by moving or resizing the column on the design screen itself.

Options:

Note that these options will apply to all of the intervals being plotted in the Lithology Description column, not just to individual intervals within the column.

Display Description: This setting is used to turn on or off the plotting of any extended text in the Lithology Description column. This can be helpful if you want to display a "short" version of your data (e.g, keywords only). Be sure to have **Display Keyword** (below) turned on if descriptions are turned off.

Display Keyword: Use this setting to turn on or off the plotting of the keyword that's listed in the Lithology tab. Although the keyword is needed to link a description to a graphic pattern in the Lithology Pattern column, you may omit the plotting of the keyword's text in the description column by clearing this check-box.

Display Colon: If you've activated the plotting of the Lithology tab keyword, above, you can select here whether the keyword is to be separated from the extended description, if any, with a colon (":") character. Note that if the colon is activated but there is no extended description for an interval, the colon will be omitted.

Font: Click on this button to access font type, style, size, and color. If, after you compile your

data for this log design within LogPlot, you find that the description characters are too large or too small for the given log scale, you may adjust the text font and size via these dialog box items.

Color: Use this button to select a color for the text. This may also be selected using the **Font** button, above.

Alignment: Choose Left, Right, or Center for the alignment of the description text within the column.

Margin: Type in a margin (in decimal inches) to be enforced along the left, right, upper, and lower edges of the column and interval. You should probably start with 0 and then increase it as necessary.

Offset descriptions: Insert a check-mark to activate automatic offsetting of description text. If activated, if a description is too large to fit within its depth interval when compiled in LogPlot, the program will shift the following descriptions down the log, so that all the text will be visible.

Move Descriptions Up: This is a new option that will allow offset descriptions to be moved upward, if there is room. This prevents continual downward-offsetting of the text.

Draw Dividers: This option is used to turn on and off the lines that are drawn between lithologic description intervals.

Draw Column Outline: This option turns on and off a solid-line border around the entire description column.

4. To accept the displayed information, click the **Apply** button. You will see the Lithology Description column placed in the design screen, labeled "Lith Desc" in the selected font, color, and size. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
5. To close the Description Column Setup window, click the **Close** button.

If you need to review the settings you established, just double-click on the column (or, right-click on the column and choose **Edit Entity**) and the program will retrieve the dialog box. You may reposition or resize the column either manually or using the Setup window's settings.

Adding a Depth or Elevation Scale Bar



Use: A Scale Bar is used to note depths or elevations down the log.

How it works: If the Scale Bar is set to **Depths**, the uppermost value on the bar will correspond to the depth at the top of the log (declared in the data file in the Setup tab). You may choose to have the depths displayed as negative values (if so entered) or you may strip off the negative sign and display their absolute values.

If the Scale Bar is set to **Elevations**, the uppermost value on the bar will correspond to the elevation declared for the well (also declared in the LogPlot data file in the Setup tab). (For more about this depth vs. elevation stuff, see "Depth versus Elevation" on page 136.)

LogPlot data tab: None. (Scale Bars have no accompanying data file commands.)


Log design example(s): Log designs "mining3.lbf" and "volcano.lbf" illustrate the use of two depth Scale Bars. "Enviro-geotech6.lbf" illustrates the use of both a depth and an elevation Scale Bar. These files are found in the "Logfiles" folder in the LogPlot 2003 program folder.

How to insert a scale bar in a log design:

1. Access the Log Designer window.



2. Select the **Scale Bar** button from the toolbar.

The pointer will change shape to a  for placing the column on the design screen.

3. Place the scale bar cursor where you want to position the left edge of the column and click the left mouse button.

The program will display the Scale Bar Setup dialog box. It is comprised of three tabs.

4. Enter the general settings on the Main tab:

Bar Position: This determines the actual placement of the scale bar; enter or change the horizontal coordinate for the vertical line of the scale bar.

Style: The **Elevation** and **Depth** radio buttons are used to identify what the labels on the scale bar will represent. (Your log data may be entered in either depths or elevations. See "Depths versus Elevation" for more information.) If your well is deviated or inclined, you can elect to have the labels represent downhole **Survey Elevation**. Type in the name of the tab in the data file that contains the downhole survey information (typically called "Orientation") and specify whether the data is entered as dip from vertical (0 = straight down and 90 = horizontal) or as dip from horizontal (0 = horizontal, -90 = straight down, +90 = straight up, as entered in RockWorks). See the Orientation Tab (page 125) for more information.

Convert: Insert a check in this box if you want the scale bar to convert your depth or elevation units from feet to meters or from meters to feet. Example: Let's say your data units are feet. You could insert one Scale Bar in the log design with no conversion, and the units would represent feet. You could insert a different Scale Bar with a Feet to Meters conversion, and the labeled units would represent meters.

5. Enter the label settings on the Labels tab in the Scale Bar Options window:

Font: Click on this button to access font settings for the depth or elevation labels.

Absolute Values: If you have requested that the scale bar labels represent depths (on the Main tab) and if your data is recorded as negative depths, you have the option of stripping off the negative sign on the label by inserting a check in the **Absolute Values** box. This setting will not be available if you have elected to display Elevation labels.

Decimal Places: Enter the number of decimal places to be represented in each label.

Angle: Choose an angle for the labels by clicking in the appropriate radio button.

Position: Choose where the labels are to be placed relative to the scale bar line by clicking in the appropriate radio button. You should double-check how you set up the tick mark position (below) as well. (Label *interval* is established on the Tick Marks tab.)

Adjust vertical position at top and bottom of page: If activated (with a check-mark) LogPlot will nudge the depth/elevation labels down or up slightly if they fall on a page break. This prevents the label from being clipped in half.

6. Enter the tick mark settings on the Tick Marks tab:

Major Tick Marks

Increment: Type in the depth or elevation interval at which the large tick marks should be plotted down the log in your downhole units *or in the converted units* if **Convert** is activated (Main tab).

! This will also be the interval for the depth/elevation labels; they are plotted with the major tick-marks.

Tick Size: Click on this button to select the size for the major tick marks, using the slider bar to set the size or typing in a value. The size, in horizontal pixels, will be displayed on the button itself.

Style: Select the desired style for the major tick marks using the displayed radio buttons. The offset of the labels is established on the Labels tab of the Scale Bar Options window (discussed above).

Minor Tick Marks

Increment: Type in the depth or elevation interval at which the small tick marks should be plotted down the log in your downhole units *or in the converted units* if **Convert** is activated (Main tab).

Tick Size: Click on this button to select the size for the smaller tick marks, using the slider bar to set the size or typing in a value. The size, in horizontal pixels, will be displayed on the button itself.

Style: Select the desired style for the minor ticks using the displayed radio buttons.

7. To accept the displayed settings, click the **Apply** button. You will see the Scale Bar in the design screen, with the appropriate tick marks, labels, etc. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
8. To close the Scale Bar Setup window, click the **Close** button.

If you need to review the settings you established, just double-click on the Scale Bar and the program will retrieve the dialog box. You can also access the Scale Bar Settings dialog box by right-clicking on the item and choosing **Edit Entity**.

Adding a Curve Column



Use: A Curve Column is used to plot quantitative data as a point-to-point curve.

How it works: As you compile your log in LogPlot, the program will locate data listed on a Curve or Multi-Curve data tab, and will plot the data in the Curve Column of the same name. The data may be plotted from left to right or right to left, linear or logarithmic scale, with or without horizontal or vertical reference grids. You may vary the line color, thickness, and style for the curve. The curves may be filled with a solid color if desired. Curves can "wrap" and can include symbols at the inflection points. You may include automatic value labels at regular intervals down the log.

Each Curve Column on the log must have a separate Curve tab in the data file, or a separate column listing within a Multi-Curve tab.

LogPlot data tab: Curve Columns link to data in Curve or Multi-Curve data tabs.


Log design example(s): Log designs "geophysical1.ldf," "geophysical2.ldf," "mining2.ldf," and "mudlog1.ldf" contain multiple Curve Column examples. These sample files are found in the "Logfiles" folder in the LogPlot 2003 program folder.

How to insert a curve column in a log design

1. Access the Log Designer window.



2. Select the **Curve** button from the toolbar.

The pointer will change shape to a "" for placing the column on the design screen.

3. Place the curve cursor where you want to position the left edge of the column and click the left mouse button.
4. Enter the curve setup information.

Information about the Curve Column position and name, data values, appearance, and grids can be found in the topics below.

5. To accept the displayed settings, click the **Apply** button. You will see the Curve Column in the design screen, with the requested color, grid lines, etc. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Curve Column Setup window, click the **Close** button.

If you need to review the settings you established, just double-click on the Curve Column (or, right-click on the column and choose **Edit Entity**) and the program will retrieve the dialog box. You can reposition or resize the Curve Column either manually on the design screen, or using the Setup dialog box settings.

How to set up the curve name, position, and scaling

Use the settings on the Main tab of the Curve Column Setup window to define the name and positioning for the curve column, and to establish the data range and scaling.

1. **Name:** The **Name** field is used to identify the Curve Column. Any data in a Curve or Multi-Curve tab in the LogPlot data file that is flagged with the same name will be plotted in this column. The name you declare must match, character-for-character, the name for the curve data listed in the data file. The name match is no longer case-sensitive. The name can be up to 60 characters in

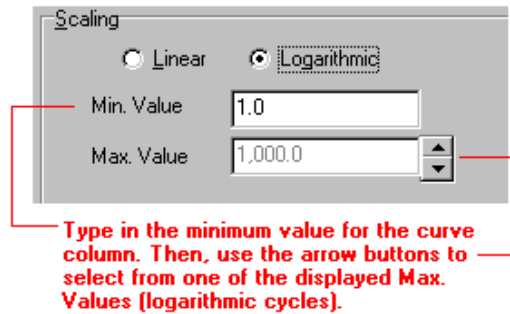
length, including spaces.

2. **Position:** These list the horizontal coordinates for the curve column. You may change the column's position by editing these values, or by widening/narrowing the column itself on the work screen.
3. **Scaling:** Select the scaling method to use by clicking in its radio button. The linear versus logarithmic (log base 10) scaling will affect how the data is entered in the next set of prompts.

In the **Min. Value** and **Max. Value** boxes enter the data values that are to be represented within the curve column.

Linear Scaling: Simply type in the data value range to be represented in the curve column. For example, if the column is to contain drilling rate values that are to be plotted from 0 to 60 feet per minute, you would enter 0 for the **Min. Value** and 60 for the **Max. Value**.

Logarithmic Scaling: For the **Min. Value**, enter the non-negative and non-zero real number to represent the minimum value of the logarithmic curve column. You may then select the appropriate **Max. Value** using the up- or down-arrows next to that prompt. You are restricted to even logarithmic cycles, such as 0.2 to 2,000, 1 to 10,000, etc.



If **Logarithmic Scaling** is selected and the program encounters a zero or negative value in the data file, that value will be plotted at the minimum-value edge of the column.

If the data values are to be plotted from the left to the right, click on the **Low to High** button. If the data are to be plotted from the right to the left, click on the **High to Low** button.

How to set up the curve appearance

1. Click on the Appearance tab of the Curve Column Setup window. It contains a variety of settings that control the appearance of the curve and curve column.
2. Set up the curve **Style**.

Line: Click on this large line sample to select the style, thickness and color for the curve line. You may select this information even if you wish to fill the curve with a solid color, below.

Curve Style: Select one of the options:

Line: With this option, the curve is plotted as a line, of the style and color selected above.

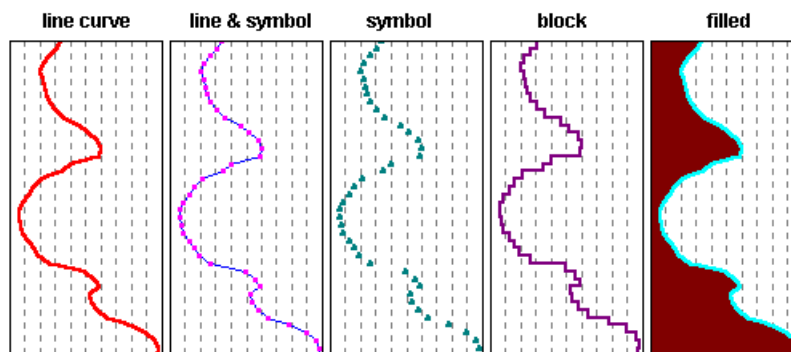
Line and Symbol: This option plots the curve as a line, using the style and color selected above. In addition, a symbol will be plotted at each data point listed in the source file. Selecting the symbol type is done using the **Symbol** button to the right (discussed below).

Symbol: This option plots a symbol at each data point in the curve column, with no line connecting the points. Selecting the symbol type is done using the **Symbol** button to the right (discussed below).

Block: This option transforms a point to point curve to a block curve, using the style and color selected above.

Filled: This option fills the curve with solid color. Click on the Color box to choose the color for the fill. This may be a different color than the **Line** color established above.

Compare these examples below.



Symbol: If you have requested a Curve Style that includes symbols, you can click on the **Symbol** example to select the symbol type and color.

Style: Select one of the symbol shapes and fills from the drop-down list at the top of the pop-up window.

Color: Choose a color for the curve symbols by clicking on the box and selecting a color.

Size: Choose **Small**, **Medium**, or **Large**, which represent percent of column width. If the pre-set sizes are too small or too large for your liking, you can select **Other** and enter a preferred percent value in the prompt box.

3. Set up the curve **Wrap**. LogPlot contains a tool to "wrap" a curve if the plotted data exceeds the maximum value of the column. Select one of the options:

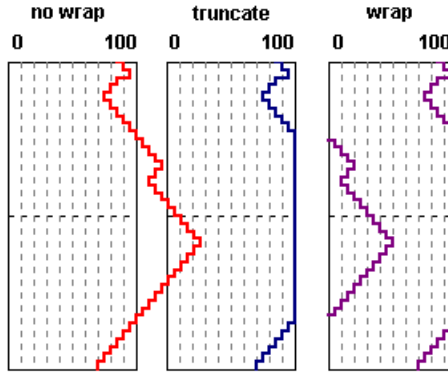
None: If this option is selected, the curve will be plotted beyond the boundary of the column if the data value exceeds the maximum value of the column.

Truncate: With this option, the curve plot will be truncated at the column border if the data value exceeds the maximum value of the column.

Wrap: This option will wrap the curve back to its baseline if the data value exceeds the maximum value of the column. When wrapped, the curve column then takes on the next data range for the plotting of the curve. If the wrapped data exceeds the maximum again, the program will continue to wrap to the baseline again.

Compare the following examples of a block curve, in which the high data values of 101-150 plot off

the column (no wrap), are truncated, or are wrapped back to the midline:



Wrap 10x: This option functions like the **Wrap**, above, except that the wrapped portion of the curve is scaled to $1/10^{\text{th}}$ the original scale. This can accommodate large data spikes without having to wrap multiple times.

4. **Frame:** Insert a check in this box if you want the Curve column to be bounded by a solid, black line.

How to set up grid lines (value and depth)

The Grid tab in the Curve, Histogram, and Cross-Plot Curve setup windows contains settings that control the plotting of horizontal and vertical grid lines to serve as value and depth reference markers.

! For Cross-Plot Curves, it's important to note that the value and depth grids will be shared by both Curve 1 and Curve 2.

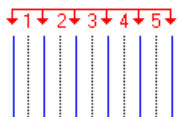
1. Click on the Grid tab in the Curve, Histogram, or Cross-Plot Curve Column Setup window.
2. **Plot Value Grid:** If you want "value" grid lines to be plotted within the column, insert a check-mark in this box. These are vertical lines that plot across the column, to note value divisions.

Linear Scaling If you have set up **Linear** scaling (Main tab), you can define both a major and a minor interval for the value grid lines:

Major Interval: Insert a check in this box to define the number of major groupings across the column. Click on the Style + Color sample to select a line style, thickness, and color for the major grid lines.

Minor Interval: Insert a check in this box to define the number of minor groupings WITHIN the major groupings. Click on the Style + Color sample to select a line style, thickness, and color for the minor grid lines.

Enter the number of major divisions. Here there are 5.



Enter the number of minor intervals WITHIN the major intervals. Here there are 2.

1 2

The screenshot shows the 'Grid' dialog box. It has a tab labeled 'Grid'. There are two checkboxes: 'Plot Value Grid' (checked) and 'Grids On Top' (unchecked). Under the 'Value' section, there are two checkboxes: 'Major Interval' (checked) and 'Minor Intervals' (checked). For 'Major Interval', there is a 'Divisions' field with the value '5' and a 'Style + Color' box. For 'Minor Intervals', there is a 'Divisions' field with the value '2' and a 'Style + Color' box.

Logarithmic Scaling: If you have requested *Logarithmic* scaling, then the program will determine automatically the number of grid lines to plot based on the log cycles that are represented by the minimum and maximum data values. You are, however, able to establish the major and minor grid line appearance.

2. **Plot Depth Grid:** If you want depth or elevation grid lines to be plotted within the column, insert a check-mark in this box. These are horizontal lines that plot down the column, to note depth or elevation intervals.

Major Interval: Insert a check here to define a main depth or elevation interval, and click on the Style + Color box to select a line style, thickness and color for these lines. Enter the actual depth or elevation interval at which the lines should be drawn.

The screenshot shows the 'Plot Depth Grid' dialog box. It has a tab labeled 'Grid'. There is a checkbox 'Plot Depth Grid' (checked). Under the 'Depth' section, there are two checkboxes: 'Major Interval' (checked) and 'Minor Intervals' (checked). For 'Major Interval', there is a 'Depth Units' field with the value '50' and a 'Style + Color' box. For 'Minor Intervals', there is a 'Depth Units' field with the value '10' and a 'Style + Color' box. Red arrows point from the text annotations to the 'Depth Units' fields.

Enter the interval in your depth units at which major divider lines are to be plotted.

Enter the interval at which the minor grid lines are to be plotted.

Minor Interval: Insert a check here to define a minor depth/elevation interval, and click on the Style + Color box to establish the line appearance. Enter the actual depth or elevation interval at which the lines should be drawn.

How to set up automatic value labels (legends)

The Legend tab in the Curve Column setup window is used to activate and configure automatic values labels that can be plotted at periodic intervals in a Curve column.

1. Click on the Legend tab in the Curve Column Setup window.
2. To activate the plotting of the value legend, insert a check-mark in the **Plot Legends** box.
3. Establish the **Interval** settings:

Depth Between Labels: Type in the depth interval between the automatic labels. For example, if you want labels to appear every 50 feet on the log, type in "50". For every 100 meters (if those are your depth units) type in "100".

Offset from Depth: This controls how far above or below the actual depth the top of the label text will be placed. This can be helpful to avoid overplotting on regularly-spaced depth grid lines. Some examples:

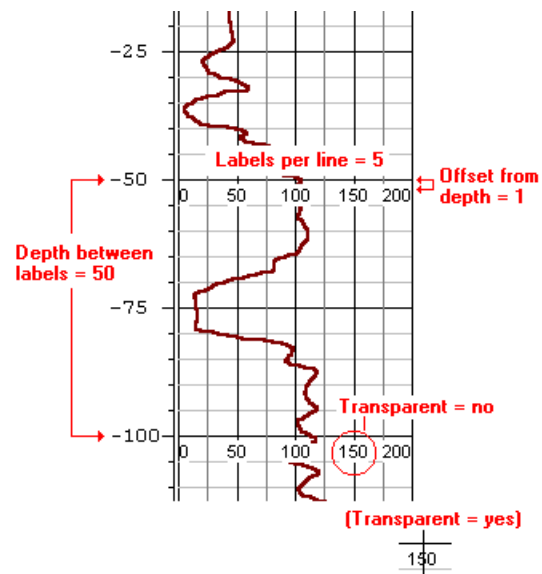
To position the top of the labels directly at the declared depth intervals, enter "0".

To place the top of the labels 1 foot below the depth intervals, enter "1".

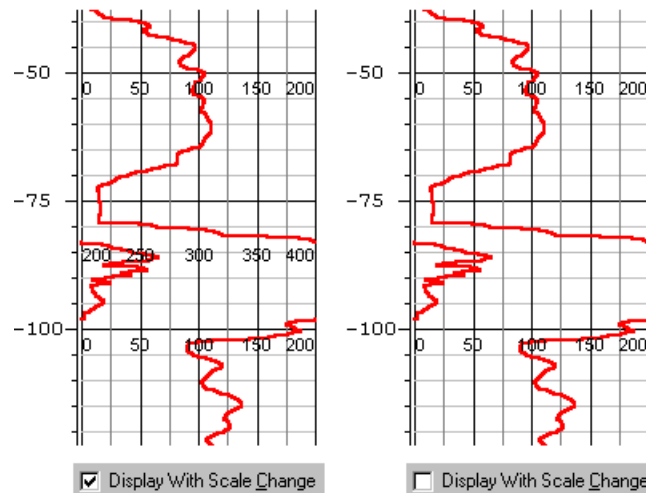
If you want to bump the labels above the depth intervals, you need to enter the offset as a negative value; "-2" will place the top of the label text 2 feet above each depth interval.

Labels per line: Type in the number of labels to appear at each depth interval. This will include the minimum column and maximum column values at either side of the column, and any additional labels in between.

Tip: If you have activated the column's value grid, set the **Labels per line** to the same value as the Major Interval Divisions *plus 1*. For example, if your value grid is set to 4 major divisions, set the Labels per line to 5.



Display with scale change: If you have selected any curve wrapping, you can request the legend labels be plotted to reflect the wrapped scale change. Here's an example:

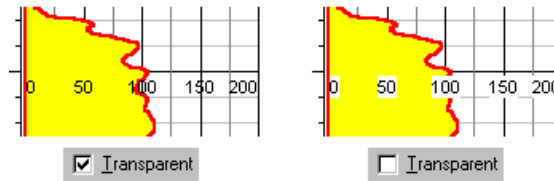


4. Establish the **Label** settings:

Font: Click on this button to select the font, size, style, and color for the automatic legend labels, and click OK.

Color: Click here to select the font color. This can also be set via the **Font** button.

Transparent: Insert a check in this box if any background grid or curve lines are to show through the label text block. Leave this box cleared if the label text is to block out any background items. Compare the examples below.



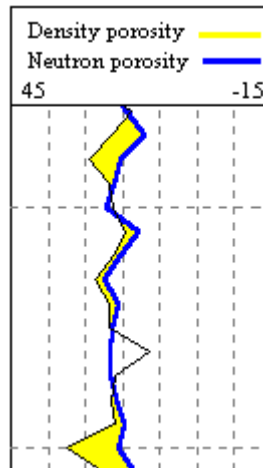
Orientation: Choose *Horizontal* or *Vertical* for the label orientation.

Decimal Places: Select the number of decimals to be represented in the labels.

Adding a Cross-Plot Curves Column



Use: A Cross-Plot Curves column is a specialized type of curve-plotting column, in which two curves are displayed in the same column, and distinct colors can be selected for the curves themselves, and for the region where the curves cross.



How it works: As you compile your log in LogPlot, the program will locate curve data flagged with the same names as the curves set up in the Cross-Plot Curve column in the design. The data may be plotted from left to right or right to left, linear or logarithmic scale, with or without horizontal or vertical reference grids. You may vary the line color, thickness, line style, solid fill, and cross-fill for the curves.


LogPlot data tabs: The data for a Cross-Plot Curve Column can be read from a Cross-Plot Curve tab, a Multi-Curve tab, or a regular Curve tab in the data file. This means that you can have a single curve listing can be plotted in several places on the log.

How to insert a Cross-Plot Curve Column in the log design

1. Access the Log Designer window.



2. Select the **Cross-Plot Curves Column** button from the toolbar.

The pointer will change shape to a "" for placing the column on the design screen.

3. Place the column cursor where you want the left edge of the column to be, in the log body portion of the design screen, and click the left mouse button to place it.

4. Enter the column settings in the displayed window.

Information about the Cross-Plot Curve position, name and data values, appearance, and grids can be found in the topics listed in the main Help window behind this window, and at the end of this topic.

5. To accept the displayed information, click the **Apply** button. You will see the Cross-Plot Curve column displayed in the design screen, with the appropriate horizontal and vertical grid lines, etc. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Crossplot Curve Options window, click the **Close** button.

If you need to review the settings you established, just double-click on the column (or, right-click on the column and choose **Edit Entity**) and the program will retrieve the dialog box. You can reposition or resize the Cross-Plot Curve column either manually on the design screen, or using the Setup dialog box settings.

How to set up the Cross-Plot Curve position and over-plot color

1. Click on the Main tab of the Crossplot Curve Options window.
2. **Position:** These list the horizontal coordinates for the column. You may change the column's position by editing these values, or by widening/narrowing the column itself on the work screen.
3. **Overplot Fill:** Click on this box to select the color and pattern to be used to fill the region where Curve 1 and Curve 2 overlap. If no fill is desired, select the blank pattern.

Here are some examples of how you can vary the curve direction, curve fill, and overlap fill to achieve different results:



In this example, the curves are plotted opposite directions. Curve 1 is plotted in blue (filled or not), Curve 2 is plotted in red (filled or not), with the overlap color set to solid green.



In this example, the curves are both plotted left-to-right. Curve 1 is plotted in blue (no fill). Curve 2 is plotted in solid green with red outline. The overlap zone is plotted in solid red.

How to set up the Cross-Plot Curve names, data range, scaling and appearance

1. Click on the Curve 1 and Curve 2 tabs in the Crossplot Curves Options window to establish the data, scaling, and appearance options for *both Curve 1 and Curve 2*.
2. Establish the curve **Name**: For each curve trace in the cross-plot column, enter a **Name** to identify the curve. Any data in a Cross-Plot Curve, Curve, or Multi-Curve tab in the LogPlot data file that is flagged with the same name will be plotted in this column. The name you declare must match, character-for-character, the name for the curve data listed in the data file. The name match is not case-sensitive. The name can be up to 60 characters in length, including spaces.

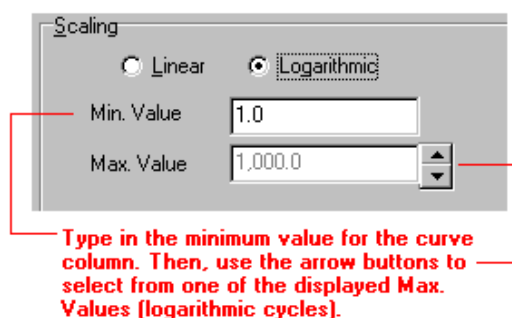
It doesn't make much difference which curve you declare for Curve 1 or Curve 2. Note, however, that Curve 2 will always plot on top of Curve 1.

3. Establish the curve Scaling options for both Curve 1 and Curve 2: Select the scaling method to use by clicking in its radio button. The linear versus logarithmic (log base 10) scaling will affect how the data is entered in the next set of prompts.

In the **Min. Value** and **Max. Value** boxes enter the data values that are to be represented within the curve column.

Linear Scaling: Simply type in the data value range to be represented in the curve column. For example, if the column is to contain drilling rate values that are to be plotted from 0 to 60 feet per minute, you would enter "0" for the **Min. Value** and "60" for the **Max. Value**.

Logarithmic Scaling: For the **Min. Value**, enter the non-negative and non-zero real number to represent the minimum value of the logarithmic curve column. You may then select the appropriate **Max. Value** using the up- or down-arrows next to that prompt. You are restricted to even logarithmic cycles, such as 0.2 to 2,000, 1 to 10,000, etc.



If **Logarithmic Scaling** is selected and the program encounters a zero or negative value in the data file, that value will be plotted at the minimum-value edge of the column.

If the data values are to be plotted from the left to the right, click on the **Low to High** button. If the data are to be plotted from the right to the left, click on the **High to Low** button. Note that for Cross-Plot Curve data, this is distinguished from the direction of fill, below.

4. Set the appearance for Curve 1 and Curve 2:

Line: Insert a check in this box if you want to plot a line to define the curve. If activated, click on the box to the right to select line style, line thickness, and color.

Fill: Click on this box to select a fill pattern and color. If no fill is desired, select the blank pattern

Fill Direction: If you have selected a non-blank fill pattern, you can choose whether the curve is to be filled to the left or to the right. This setting operates independently of which direction the curve is actually plotting! See the previous section for some examples.

How to set up the Cross-Plot Curve grid lines (value and depth): See this topic under the Curve Column, page 62.

Adding a Pattern Percent Column



Use: A Pattern Percent column is used to plot lithology patterns in a column, based on component percentages.

How it works: As you compile your log in LogPlot, the program will locate relative percentage data for declared keywords and intervals that are listed in a Percent data tab that has the same name. It will plot the appropriate patterns in the Pattern Percent column, the width of each pattern corresponding to that component's percent representation. This is typically used to represent cuttings percentages in a graphic manner.

See the Lithology Pattern column (Page 53) for plotting individual pattern blocks for each depth interval.

LogPlot data tabs: Pattern Percent Columns are linked to LogPlot Percent tabs.


Log design example(s): Log designs "lithology3.ldf" and "mudlog1.ldf" contain examples of Pattern Percent columns. These samples are found in the "Logfiles" folder in the LogPlot2003 program folder.

How to create a pattern percent column in a log design:

1. Access the Log Designer window.



2. Select the **Pattern % Column** button from the toolbar.

The pointer will change shape to a " for placing the column on the design screen.

3. Place the cursor where you want the left edge of the column to be, in the log body portion of the design screen, and click the left mouse button to place it.

4. Enter the requested information in the column Setup window.

Name: Enter the name for this Pattern Percent column. Any percentage data in the LogPlot data file that is flagged with the same name will be plotted in this Pattern Percent column. The name can be up to 60 characters in length, including spaces.

Position: These coordinates determine the horizontal placement of the Pattern Percent column in the body of the log. You may change the column's position by editing these values, or by moving or resizing the column on the design screen itself.

5. To accept the displayed information, click the **Apply** button. You will see the Pattern Percent column placed in the design screen, filled with several pattern designs. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Pattern Percent Column Setup window, click the **Close** button.

If you need to review the settings you established, just double-click on the column and the program will retrieve the dialog box. You can also right-click on the column and choose **Edit Entity** to access the settings. You can reposition or resize the column either manually or via the dialog box settings.

Adding a Histogram Column



Use: A Histogram Column is used to plot quantitative data as a histogram bars.

How it works: As you compile your log in LogPlot, the program will locate data in the Histogram or Multi-Histogram columns, and it will plot the data in the Histogram column of the same name. The data may be plotted from left to right or right to left, linear or logarithmic scale, with or without horizontal or vertical reference grids. You may vary the color and fill pattern for the histogram bars. Each Histogram column on the log must have a separate Histogram tab (or column in a Multi-Histogram tab) in the data file.

LogPlot data tab: Histogram columns are linked to data entered into a Histogram tab or Multi-Histogram tab.


Log design example(s): Log designs "mining1.ldf," "mining2.ldf," and "mining3.ldf" contain examples of multiple Histogram columns. These samples are found in the "Logfiles" folder in the LogPlot2003 program folder.

How to insert a histogram column in a log design:

1. Access the Log Designer window.



2. Select the **Histogram** button from the toolbar.

The pointer will change shape to a  for placing the column on the design screen.

3. Place the histogram cursor where you want to position the left edge of the column and click the left mouse button.
4. Enter the histogram setup information.
Information about the Histogram Column position and name, data values, appearance, and grids can be found in the topics below.
5. To accept the displayed settings, click the **Apply** button. You will see the Histogram Column in the design screen, with the requested color/pattern, grid lines, etc. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Histogram Column Setup window, click the **Close** button.

If you need to review the settings you established, just double-click on the Histogram column and the program will retrieve the dialog box. You can also access the Settings dialog box by right-clicking on the column and choosing **Edit Entity**. You can reposition or resize the Histogram Column either manually on the design screen, or using the Setup dialog box settings.

How to set up the histogram name, position, and scaling:

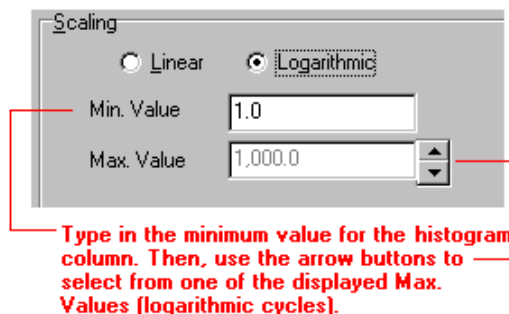
Use the settings on the Main tab of the Histogram Column Setup window to define the name and positioning for the histogram column, and to establish the data range and scaling.

1. **Name:** The **Name** field is used to identify the Histogram column. Any data in a Histogram or Multi-Histogram tab in the LogPlot data file that is flagged with the same name will be plotted in this column. The name you declare must match, character-for-character, the name for the histogram data listed in the data file. The name match is not case-sensitive. The name can be up to 60 characters in length, including spaces.
2. **Position:** These list the horizontal coordinates for the Histogram column. You may change the column's position by editing these values, or by widening/narrowing the column itself on the work screen.
3. **Scaling:** Select the scaling method to use by clicking in its radio button. The linear versus logarithmic (log base 10) scaling will affect how the data is entered in the next set of prompts.

In the **Min. Value** and **Max. Value** boxes enter the data values that are to be represented within the histogram column.

Linear Scaling: Simply type in the data value range to be represented in the histogram column. For example, if the column is to contain assay values that are to be plotted from 0 to 5 ppm, you would enter 0 for the **Min. Value** and 5 for the **Max. Value**.

Logarithmic Scaling: For the **Min. Value**, enter the non-negative and non-zero real number to represent the minimum value of the logarithmic histogram column. You may then select the appropriate **Max. Value** using the up- or down-arrows next to that prompt. You are restricted to even logarithmic cycles, such as 0.2 to 2,000, 1 to 10,000, etc.



If **Logarithmic Scaling** is selected and the program encounters a zero or negative value in the data file, that value will be plotted at the minimum-value edge of the column.

If the data values are to be plotted from the left to the right, click on the **Low to High** button. If the data are to be plotted from the right to the left, click on the **High to Low** button.

How to set up the histogram appearance

1. Click on the Appearance tab of the Histogram Column Setup window. It contains a variety of settings that control the appearance of the histogram column.
2. **Outline Color:** Click on the color box to select the color for the bounding outline of each histogram bar.
3. **Pattern color:** Click on the color box to select the color for the fill pattern.
4. **Pattern:** Select the pattern to be used to fill the histogram bars by clicking in one of the pattern boxes.
4. **Frame:** Insert a check here if the Histogram column itself is to be bounded by a solid-line rectangle.

How to set up the Histogram Column grid lines (value and depth): See this topic under the Curve Column, page 62.

Adding a Histogram Value Column



Use: A Histogram Value column is used to plot text labels representing histogram data values, usually in association with a Histogram column.

How it works: As you compile your log in LogPlot, the program will locate data in Histogram or Multi-Histogram data sheets, and it will plot the numeric values as textual labels in the Histogram Value column of the same name. This can pull values from the same data listing as an associated Histogram column. The labels may be left or right-justified, opaque or transparent.

LogPlot data file example: Histogram Value columns are linked to data entered into a Histogram or Multi-Histogram tab.

Log design example(s): Log design "mining3.ldf" contains examples of multiple Histogram Value columns. This file is found in the "Logfiles" folder in the LogPlot 2003 program folder.

How to create a histogram value column in a log design:

1. Access the Log Designer window.



2. Select the **Histogram Value** button from the toolbar, or command from the **Tools / Log Body Items** menu.

The pointer will change shape for placing the column on the design screen.

3. Place the histogram value cursor where you want to position the left edge of the column and click the left mouse button.
4. Enter the setup information.

Name: Click the arrow to the right of this prompt to select the name of the existing Histogram column in the design, to which this column is to be associated. This should also be the name of a Histogram or Multi-histogram listing in the data file, where the data will be located. If none exists, you can type in a name. Entity names can be up to 60 characters in length, including spaces.

Position: These coordinates determine the horizontal placement of the Histogram Value column in the body of the log. You may change the column's position by editing these values, or by moving or resizing the column on the design screen itself. Horizontal coordinates are expressed in screen pixels relative to the left edge of the design screen.

! This Histogram Value column can overlay a Histogram column if desired.

Font: Click on this button to access font type, style, size, and color for the value labels. If, after you compile your data for this log design within LogPlot, you find that the description characters are too large or too small for the given log scale, you may adjust the text font and size via these dialog box items.

Color: Use this button to select a color for the text. This may also be selected using the **Font** button, above.

Decimals: Click on the up- or down-arrow as necessary to set the number of decimal places for the value labels. Think about this one - if the histogram values are small, be sure to set an adequate number of decimal places. Similarly, large integer values won't require any decimal places.

Alignment: Choose **Left** to align the first characters of the value labels along the left edge of the column, defined above. Or, choose **Right** to align the last character of each label along the right edge of the column, also defined above.

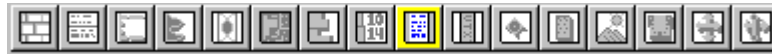
Opaque Text Background: Insert a check here if the labels are to block out any background items, or leave this blank to leave the text "transparent" so that any background items are still visible.

Draw column outline: Insert a check here if you want the Histogram Value column to be bounded by a solid-line rectangle. If this column is overlaying another column that already has a frame, you may wish to disable this outline.

5. To accept the displayed information, click the **Apply** button. You will see the Histogram Value column placed in the design screen, with the selected text style/size/color displayed, aligned left or right, with the selected number of decimal places. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Histogram Value Setup window, click the **Close** button.

If you need to review the settings you established, double-click on the Histogram Value column and the program will retrieve the dialog box. You can also access the Settings dialog box by right-clicking on the column and choosing **Edit Entity**. You can reposition or resize the Histogram Value column either manually on the design screen, or using the Setup dialog box settings.

Adding a Text Column



Use: A Text column is used to plot depth-related text that is NOT associated with a lithologic pattern.

How it works: As you compile your log in LogPlot, the program will locate text listed in a Text-Column data tab of the same name, and plot it in the Text column at the indicated depth or elevation. You might use a Text column to display short notes listing sample numbers or measurements of moisture content, or even extended textual listings noting drilling procedures.

Text that is to be associated with lithologic patterns is designed with the Lithology Description Column tool. Text that is to be plotted vertically is designed with the Vertical Text Column tool.

LogPlot data tab: Text columns are linked to data entered into Text Column tabs.


Log design example(s): Log designs "mining3.lbf," "enviro-geotech4.lbf," "enviro-geotech5.lbf," and "enviro-geotech6.lbf" contain examples of Text Columns containing comments, text data, etc. These files can be found in the "Logfiles" folder in the LogPlot2003 program folder.

How to create a text column in a log design:

1. Access the Log Designer window.



2. Select the **Text Column** button from the toolbar.

The pointer will change shape to a "" for placing the column on the design screen.

3. Place the text column cursor where you want the left edge of the column to be, in the log body portion of the design screen, and click the left mouse button to place it.

! Tip: You can place a Text Column right on top of another log design entity. For example, when placed on top of a Lithology Description Column, a Text Column can be used to note comments (even use a different font) without taking up precious log space.

4. Enter the column settings in the displayed window.

Name: Enter the name for this Text Column. Any text entered in a LogPlot Text-Column data tab with the same name will be plotted in this column. The name can be up to 60 characters in length, including spaces.

Position: These coordinates determine the horizontal placement of the Text Column in the body of the log. You may change the column's position by editing these values, or by moving or resizing the column on the design screen itself.

Frame Column: If this box is checked, the column will be bounded by a solid-line rectangle.

Font: Use this button to retrieve the Font dialog box where you can establish the font type, style, size, and color to be used for the text column. If, after you compile your data for this log design within LogPlot, you find that the characters are too large or too small for the given log scale, you may access the font settings again using the **Font** button.

Color: Use this button to select a color for the text. This may also be selected using the **Font** button, above.

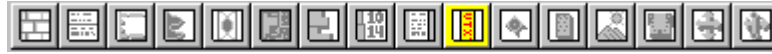
Margin: Type here the number of screen pixels to act as a margin along the left and right edges of the text column.

Text Alignment: Choose **Left**, **Center**, or **Right** by clicking in the appropriate radio button.

5. To accept the displayed information, click the **Apply** button. You will see the Text column placed in the design screen, labeled "Text Col." You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Text Column Setup window, click the **Close** button.

If you need to review the settings you established, just double-click on the column (or right-click on the column and choose **Edit Entity**) and the program will retrieve the dialog box. You can reposition or resize the column either manually or via the dialog box settings.

Adding a Vertical Text Column



Use: A Vertical Text column is used to plot vertical text labels within the body of the log.

How it works: As you compile your log in LogPlot, the program will locate text listed in a Vertical-Text-Column tab of the same name, and plot it in the Vertical Text column at the indicated depth or elevation range. Vertical text can be used to note interpreted stratigraphic units, geologic time units, etc.

Vertical text labels in the *header* or *footer* of the log are inserted using the Static Text or Edit Text tools. *Horizontal* text listings in the log body are inserted using the Text Column tool.

LogPlot data tabs: Vertical Text Columns are linked to data entered into Vertical-Text data tabs.


Log design example(s): Log design "LogPlot2001 new.lbf" contains examples of Vertical Text columns containing geologic age, group, and formation notations. This file is found in the "Logfiles" folder in the LogPlot2003 program folder.

How to create a Vertical Text Column in a log design:

1. Access the Log Designer window.



2. Select the **Vertical Text Column** button from the toolbar.

The pointer will change shape to a "" for placing the column on the design screen.

3. Place the column cursor where you want the left edge of the column to be, in the log body portion of the design screen, and click the left mouse button to place it.
4. Enter the column settings in the displayed window.

Name: Enter the name for this Vertical Text column. Any text entered in a LogPlot Vertical Text data tab with the same name will be plotted in this column. The name can be up to 60 characters in length, including spaces.

Position: These coordinates determine the horizontal placement of the Vertical Text column in the body of the log. You may change the column's position by editing these values, or by moving or resizing the column on the design screen itself.

Frame Column: If this box is checked, the column will be bounded by a solid-line rectangle.

Text Down, Text Up: These radio buttons are used to specify whether the text labels are to be plotted downward or upward in the column. Note the preview in the dialog box which shows examples.

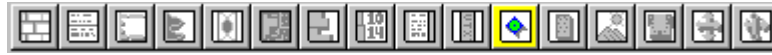
Font: Use this button to retrieve the Font dialog box where you can establish the font type, style, size, and color to be used for the text column.

Color: Use this button to select a color for the text. This may also be selected using the **Font** button, above.

5. To accept the displayed information, click the **Apply** button. You will see the Vertical Text column displayed in the design screen, labeled "Vertical Text Col." You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Vertical Text Setup window, click the **Close** button.

If you need to review the settings you established, just double-click on the column (or right-click on the column and choose **Edit Entity**) and the program will retrieve the dialog box. You can reposition or resize the column either manually or via the dialog box settings.

Adding a Symbol Column



Use: A Symbol column is used to plot a specific symbol at user-declared depths.

How it works: As you compile your log in LogPlot, the program will locate a depth or elevation declaration listed in the Symbol-Column data tab. It will plot the user-specified symbol at the declared depth/elevation in the Symbol Column of the same name. Such symbols could be used to note locations where a sidewall core sample was taken, or to note water level depth. Each Symbol column on the log must have a separate tab in the LogPlot data file.

LogPlot data tabs: Symbol Columns are linked to data entered in Symbol Column data tabs.


Log design example(s): Log designs "geophysical2.ldf" and "enviro-geotech6.ldf" contain examples of Symbol columns. These files are found in the "Logfiles" folder in the LogPlot 2003 program folder.

How to add a symbol column to a log design:

1. Access the Log Designer window.



2. Select the **Symbol Column** button from the toolbar.

The pointer will change shape to a " " for placing the column on the design screen.

3. Place the symbol cursor where you want the left edge of the column to be, in the log body portion of the design screen, and press the left mouse button.

The program will display the Symbol Column Setup window.

! Tip: You can place a Symbol column right on top of another log design entity, such as a Well Construction column to show water level, or a Scale Bar to show drill stem tests.

4. Enter the requested information:

Name: Enter the name for this Symbol column. Any symbol data in the LogPlot data file that is flagged with the same name will be plotted in this Symbol column. The name can be up to 60 characters in length, including spaces.

Position: These coordinates determine the horizontal placement of the Symbol column in the body of the log. You may change the column's position by editing these values, or by moving or resizing the column on the design screen itself.

Frame Column: If this box is checked, the column will be bounded by a solid-line rectangle.

5. To accept the displayed information, click the **Apply** button. You will see the Symbol column placed in the design screen. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Symbol Column Setup window, click the **Close** button.

If you need to review the settings you established, double-click on the column (or right-click on the column and choose **Edit Entity**) and the program will retrieve the dialog box. You can reposition or resize the column either manually or via the dialog box settings.

Adding a Fillbar Column



Use: A Fillbar column is used to fill user-declared depth intervals with a specific pattern.

How it works: As you compile your log in LogPlot, the program will locate depth or elevation intervals listed in a "Fillbar" data tab. It will plot a user-specified pattern from the top to the base of the interval in the Fillbar column of the same name. Such pattern intervals are typically used to note intervals of core sampling or of qualitative nature such as "trace show" or "good porosity." Each Fillbar column on the log must have a separate Fillbar tab in the data file.

LogPlot data tabs: Fillbar Columns are linked to depth intervals listed in Fillbar data tabs.


Log design example(s): Log designs "mining3.lbf," "geophysical2.lbf," "mudlog1.lbf," "volcano.lbf," "enviro-geotech4.lbf," and "enviro-geotech6.lbf" all contain examples of Fillbar columns used for a variety of data. These samples are found in the "Logfiles" folder in the LogPlot2003 program folder.

How to add a fillbar to a log design:

1. Access the Log Designer window.



2. Select the **Fillbar** button from the toolbar.

The pointer will change shape to a "" for placing the column on the design screen.

3. Place the fill bar cursor where you want the left edge of the column to be, in the log body portion of the design screen, and press the left mouse button.
4. Enter the requested information in the Fillbar Setup window.

Name: Enter the name for this Fillbar column. Any fill bar data in the LogPlot data file that is flagged with the same name will be plotted in this column. The name can be up to 60 characters in

length, including spaces.

Position: These coordinates determine the horizontal placement of the Fillbar column in the body of the log. You may change the column's position by editing these values, or by moving or resizing the column on the design screen itself.

Fill Pattern: Click on the pattern to be used to fill the Fillbar intervals.

Outline Color: Choose the color for the outline of the filled intervals.

Fill Color: Choose the color for the pattern to be used to fill the intervals.

Frame: Insert a check here if you want the entire fillbar column to be drawn in a solid black line. Remove the check if no outline is desired. If deactivated, the column will be "invisible" unless an interval is plotted.

5. To accept the displayed information, click the **Apply** button. You will see the Fillbar column placed in the design screen, filled with the selected pattern and color. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Fillbar Column Setup window, click the **Close** button.

If you need to review the settings you established, double-click on the column (or right-click on the column and choose **Edit Entity**) and the program will retrieve the dialog box. You can reposition or resize the column either manually or via the dialog box settings.

Adding a Bitmap Column



Use: A Bitmap column is used to display a bitmap (BMP or JPG) image in the body of a log, in order to illustrate core sample images, fossil pictures, special sampling symbols, and more.

! Bitmaps that you wish to include in the *header* or *footer* of the log are inserted using the Header / Footer Picture tool.

How it works: As you compile your log in LogPlot, the program will locate a Bitmap data tab with the same name as the Bitmap column in the log's design. Any BMP or JPG images listed in the data tab will be plotted in that column. The bitmap pictures can be plotted at real size or stretched to fill the column width and depth interval length. Each Bitmap column on the log must have a separate Bitmap tab in the data file.

LogPlot data tabs: Bitmap Columns are linked to data entered into Bitmap data tabs in LogPlot.

Log design example(s): The design "mining2.lbf" contains an example of a Bitmap column used for plotting fossil pictures. This sample is found in the "Logfiles" folder in the LogPlot2003 program folder.

How to insert a bitmap column into a log design:

1. Access the Log Designer window.



2. Select the **Bitmap Column** button from the toolbar.



The pointer will change shape to a " " for placing the column on the design screen.

3. Place the cursor where you want the left edge of the Bitmap column to be, in the log body portion of the design screen, and press the left mouse button.

The program will display the Bitmap Column Setup window.

4. Enter the requested settings.

Name: Enter the name for this Bitmap column. If LogPlot finds a Bitmap data tab with the same name, it will plot the referenced BMP or JPG file(s) into the column. The name can be up to 60 characters in length, including spaces.

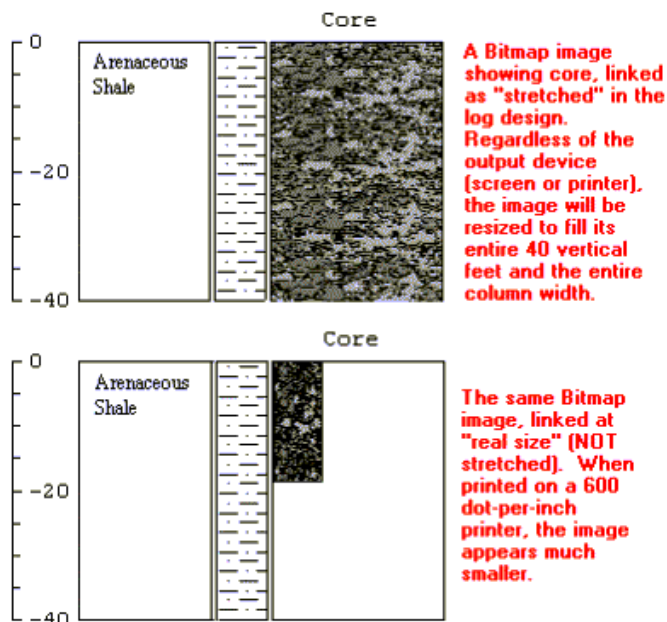
Position: These coordinates determine the horizontal placement of the Bitmap column in the body of the log. You can change the column's position by editing these values, or by moving or resizing the column on the design screen itself.

Stretch Bitmap: Insert a check in this box if you want the bitmapped image that will be plotted in this column to be stretched to fill the entire column width. *This is important!*

If this box is checked, the bitmapped image will be resized horizontally to fill the width of the Bitmap Column you declare here, and vertically to fill the entirety of the depth interval declared for the bitmap in the data file.

If this box is not checked, the bitmapped image will be plotted in the column at its "true size."

! Be warned! The "size" of a bitmap is determined by the resolution of the output device. A 100-pixel by 400-pixel bitmap will look much larger when displayed on your computer screen than when printed on a 600 dot per inch printer!



Border Around Bitmaps: Insert a check in this box if you want the Bitmap column to include a solid-line border.

5. To accept the displayed information, click the **Apply** button. You will see the Bitmap column displayed in the design screen, labeled "IMG." You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Bitmap Column Setup window, click the **Close** button.

If you need to change any of the column's characteristics, double-click on the column, and the program will retrieve the dialog box. You can also access the dialog box settings by right-clicking on the column and choosing **Edit Entity**. You can reposition or resize the column either manually or via the dialog box settings.

Adding a Well Construction Column



Use: A Well Construction column is used to illustrate the materials and intervals used in the construction of the well using graphic pattern blocks.

How it works: As you compile your log in LogPlot, the program will locate any Well-Column data tabs and read the declared material names (entered as "keywords," just like lithology) and their inner and outer diameter measurements. If LogPlot finds a Well Construction column in the design of the same

name, it will plot the appropriate pattern for each material over the declared depth interval, at the declared width in the column.

Each Well Construction column on the log must have a separate Well-Column tab in the data file.

LogPlot data tabs: Well Construction Columns are linked to data entered into Well-Column data tabs in LogPlot.


Log design example(s): The designs enviro-geotech4, 5, 6, 8, and 9.lbf contain examples of simple to detailed Well Construction columns. These files are found in the "Logfiles" folder in the LogPlot2003 program folder.

How to insert a well construction column into a log design:

1. Access the Log Designer window.



2. Select the **Well Construction** tool from the toolbar.

The pointer will change shape to a " " for placing the column on the design screen.

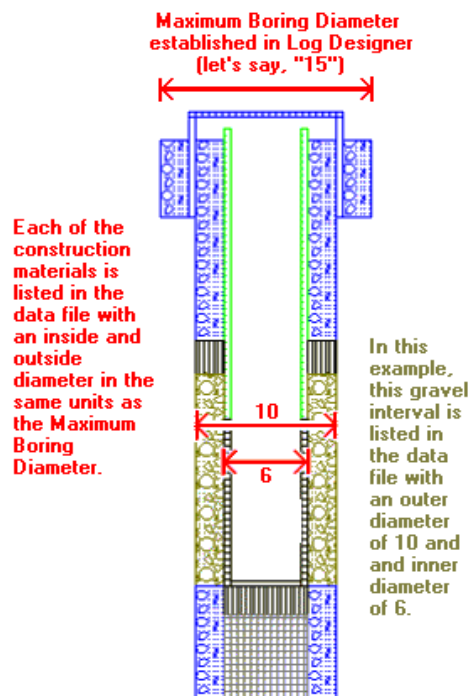
3. Place the cursor where you want the left edge of the Well Construction column to be, in the log body portion of the design screen, and press the left mouse button to place it.
4. Enter the column's settings in the displayed window.

Name: Enter the name for this Well Construction column. If LogPlot finds a Well-Column data tab with the same name, it will plot pattern-filled intervals representing the construction materials in that Column on the log. The name can be up to 60 characters in length, including spaces.

Position: These coordinates determine the horizontal placement of the Well Construction column in the body of the log. You may change the column's position by editing these values, or by moving or resizing the column on the design screen itself.

Maximum Boring Diameter: Enter here the real diameter of the drill hole, in any units you wish. An entry of "12," for example, could represent 12 inches. Or an entry of "30" could represent 30 centimeters.

This setting will not affect the actual width of the column on the log (you adjust that yourself just like all of the other log body columns). It *will* determine the width of the casing, screens, and other intervals that will be plotted within the column. These items are all listed within the data file with outer and inner diameter measurements, relative to this **Maximum Boring Diameter**.



Border Around Column: Insert a check in this box if you want the Well Construction column to include a solid-line border.

5. To accept the displayed information, click the **Apply** button. You will see the Well Construction column displayed in the design screen according to your settings. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Well Construction Setup window, click the **Close** button.

If you need to change any of the column's characteristics, double-click on the column, and the program will retrieve the dialog box. You can also access the dialog box settings by right-clicking on the column and choosing **Edit Entity**. You can reposition or resize the column either manually or via the dialog box settings.

Adding Horizontal Log Body Lines



Use: The Horizontal Line tool is used to plot a horizontal line of user-defined length and style at regular depth intervals *AND/OR* at specific user-declared depths in the body of the log. This could be used to plot a line at the total depth level in the log.

How it works: If you request regularly-spaced horizontal lines here in the log design, there's nothing more you need to do; the program will plot the lines at the specified intervals down the log. If you wish to declare specific depths for the line(s), you can do so with Horizontal Line tabs in the data file. You may request both.

LogPlot data tabs: Horizontal Lines can be linked to depth listings in Horizontal Line tabs in the data file.

Log design example(s): Log design "enviro-geotech8.ldf" contains examples of the use of horizontal lines matching text with a well construction diagram.

How to insert a horizontal line into the log design:

1. Access the Log Designer window.



2. Select the **Horizontal Line** button from the toolbar (or command from the **Tools / Log Body Items** menu).

The pointer will change shape to a "+" for placing the line on the design screen.

3. Place the "+" at the horizontal location in the body of the log design where the left edge of the line should be placed, and click the left mouse button.

4. Enter the line settings in the Setup window:

Name: Enter a **Name** to identify the line. This will only be used if you define specific depths for the line in the data file; in this case the name in the Horizontal Line data tab would need to match this name. The name match is not case-sensitive. The name can be up to 60 characters in length, including spaces.

Position: Use the **Left** and **Right** boxes to define the horizontal positioning for the line. If, for example, you want the line plotted from the far left side of the log to the far right side, you would enter coordinates that correspond to the left-most and the right-most log items.

Line: Click on this box to choose the line style, thickness, and color for the horizontal line.

Automatic Intervals: Insert a check here if you want the horizontal line to be plotted at regular intervals down the log. If activated, you can enter the depth intervals in the prompt box. If not activated, you'll need to specify the depth(s) at which the line is to be plotted via the data file. You can request both automatic intervals AND enter customized depths.

5. To accept the displayed information, click the **Apply** button. You will see the line displayed in the design screen. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Horizontal Body Line window, click the **Close** button.

You will not be able to drag the line up or down in the design screen; its representation should be used to determine horizontal placement only. If you need to change any of the line characteristics, double-click on the line, and the program will retrieve the dialog box. Or, right-click on the line and choose **Edit Entity** to access the dialog box settings.

Adding Vertical Log Body Lines



Use: The Vertical Line tool is used simply to plot a vertical line anywhere on the body of the log. It can be used to darken column boundaries, and to create a solid-line border around the log.

How it works: This is a log design item only; it will be represented in the compiled log like it is in the log design. There are no corresponding data file commands.

LogPlot data tabs: None.

Log design example(s): Most of the environmental/geotechnical log designs ("enviro-geotech1.lbf," "enviro-geotech2.lbf," etc.) contain examples of vertical lines used to create a solid line border around the entire log. These samples are found in the "Logfiles" folder in the LogPlot2003 program folder.

How to insert a vertical line into the log design:

1. Access the Log Designer window.



2. Select the **Vertical Line** button from the toolbar.

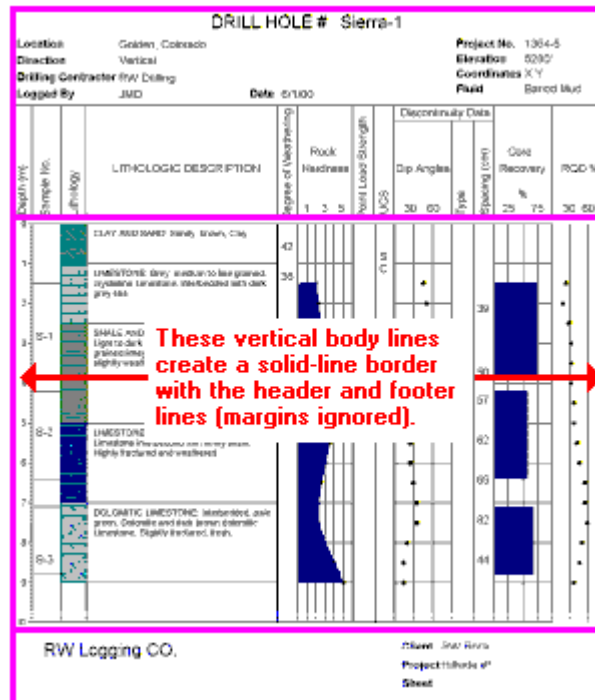
The pointer will change shape to a "+" for placing the line on the design screen.

3. Place the "+" at the horizontal location in the body of the log design where the line should be placed, and click the left mouse button.
4. Enter the line settings in the Setup window:

Position: The value displayed here reflects the current horizontal position of the line.

Line: Click on this box to choose the line style, thickness, and color for the vertical line.

Ignore Header/Footer Margin: Insert a check here if you want the body line to extend all the way to the header and footer, thus ignoring any header or footer margin that you have requested. This is commonly used to create solid boundary lines around the log. This would also require that you have boundary lines or rectangles in the header and footer that align with these vertical body lines.



5. To accept the displayed information, click the **Apply** button. You will see the vertical line displayed in the design screen. You may continue to adjust the settings if necessary; remember to click **Apply** any time you want your changes applied.
6. To close the Log Body Line Setup window, click the **Close** button.

If you need to change any of the line characteristics, double-click on the line, and the program will retrieve the dialog box. Or, right-click on the line and choose **Edit Entity** to access the dialog box settings.

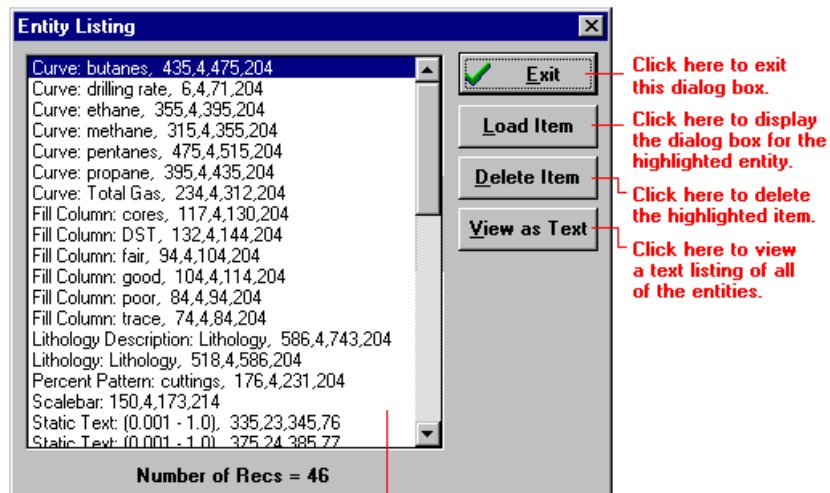
Listing Log Entities

The Log Designer permits you to view a listing of all of the items that are currently included in the open log design:



1. Select the **View Entity List** button from Log Designer's left-hand toolbar, or the same command from the **Edit** menu.

The program will display a window that looks like this:







Each item that you have inserted into the log design, header, footer, & body items, will be listed here.

They are listed by entity type.

You can use this listing to:

- * View the total number of entities in the design,
- * Locate items that may not be visible in the design screen,
- * Load a dialog box for an entity without having to double-click on it in the design screen,
- * View a text listing of the entities.

How to...

-  View the current list of log entities. See **Help / Contents**, click Index, enter View Entity List.
-  View the settings for the currently-selected item. See Help as above.
-  Delete the currently-selected item. See Help as above.
-  View the list as text. See Help as above.

Entering Your Data







LogPlot Data Editor Introduction

The LogPlot Data Editor is the first window that you will see when you start the LogPlot program. In this Editor:

- You can create new data files by typing in or cut-and-pasting information.
- You can open existing data files, created in LogPlot2001, LogPlot98, LogPlot97, or LogPlot v. 1.
- You can make changes and additions to any data files.
- You can create a blank data template for any log design and update an existing data file for design changes.
- You can import data from LAS, DBF, and text files.

The LogPlot Data Editor displays different blocks of data (lithology descriptions, curve listings, etc.) in tabbed data "pages" where you can type, point-and-click, or cut-and-paste the information. Throughout this documentation, we refer to these data pages as "tabs."

Log Data Editor Topics:

-  General Introduction (below).
-  Data Editor Files (see page 93).
-  Data Tab Summary (see page 99).
-  Automatic Data Tab Tools (see page 139).
-  Other Data Tab Tools (see page 141).
-  Importing Data (Text, DBF, LAS) (see page 152).

General Introduction

Accessing the Data Editor

The LogPlot program contains 3 different windows:

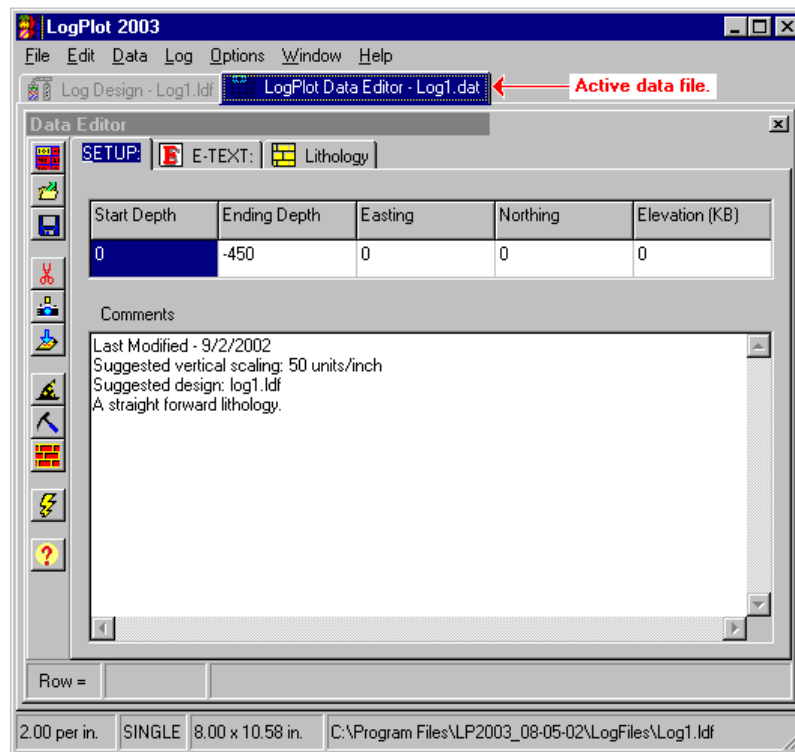
The **Data Editor**, used for entering data.

The **Log Design** window, for creating or editing the layout of the log, and

The **Log Plot** window, for viewing and printing compiled graphic logs.

If you cannot see the Data Editor because it is hidden behind the Design or Plot window, follow these steps to access it:

1. Click on the Data Editor tab to bring that window to the front.

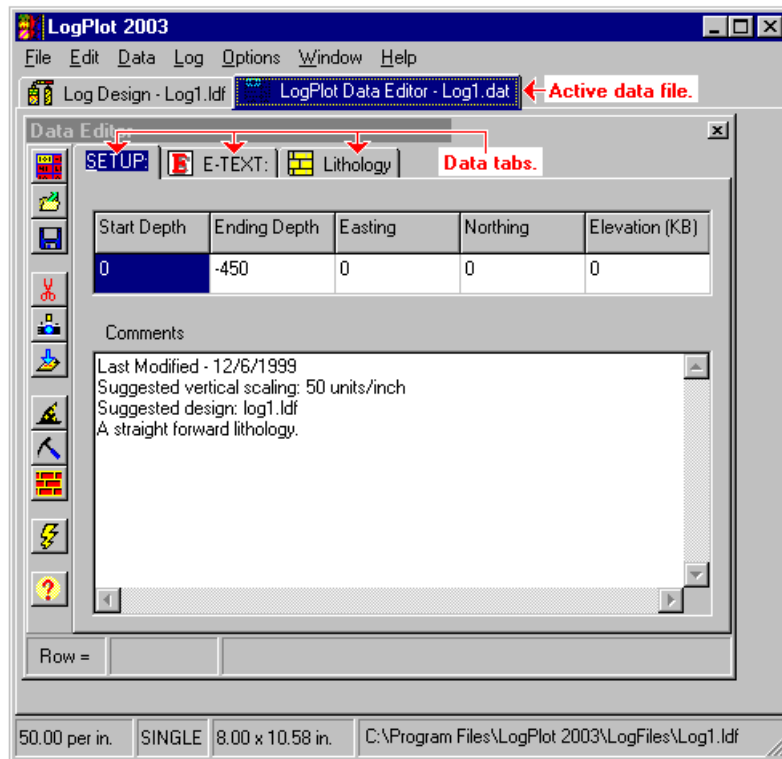


2. If there are no Data Editor windows open, use LogPlot's **File / New / Data Editor** command to open a new Data Editor window.

! New to LogPlot2003 is the ability to keep more than one data file open at a time. All are accessible by clicking on their stick-up tabs, labeled with the file's name.

The Data Editor Window

Here is a sample of how the Data Editor screen looks with a sample data file loaded:



The "Setup" tab establishes the top, base, and location of the drill hole. Each other tab within the Editor corresponds to an item within the log's design file ("LDF") and contains the data to be plotted in that item.

To view the data contained in any of the data tabs, simply click on the tab name and it will be brought to the foreground.

! New to LogPlot2003 is the ability to keep more than one data file open at a time. All are accessible by clicking on their stick-up tabs, labeled with the file's name.

Where Do I Start Entering/Editing Data?

With the LogPlot program started, follow these steps to get started.

Plan 1: Modify an Existing LogPlot Data File

1. Access the Data Editor window (page 89).
2. Open the existing LogPlot data file: Select the **File** menu from the Data Editor menu. Select the **Open** command, and select the data (DAT file) you wish to modify.

See the listing of sample logs in the Reference Section. (Page 205).
3. Add data to the existing data tabs (type it in, copy/paste it from another document, import into a single tab).
4. Add new data tabs (**Data / New Data Item**) or delete unused data tabs (right-click, choose **Delete Data Page**).
5. Save the data file (**File / Save** or **Save As**).

Plan 2: Import a LAS File

If you have LAS geophysical data (elogs, sonic logs, etc.) LogPlot offers an import tool.

1. Create a new Data Editor window (page 93).
2. Import the LAS data (page 156).

Plan 3: Create a Data File Template for the Log Design

1. Access the Log Designer window and open an existing log design for which you want to create a data file. This is now considered the default log design. (Page 19.)
2. Select the **Data / Create New Data Template** option.

The program will add one or more tabs to the current Data Editor window, specific to the items in the active log design. For example, if the design contained a lithology pattern column named "Rock Types" and a curve column named "Drilling Rate", then two tabs would be added to the Data Editor: a "Lithology" tab named "Rock Types" and a Curve tab named "Drilling Rate."

4. Add data to the existing data tabs (type it in, copy/paste it from another document, import into a single tab).
5. Add new data tabs as necessary (**Data / New Data Item**).
6. Save the data file (**File / Save**).

Plan 4: Create a Data File from Scratch

1. Access the Data Editor window.
2. Create a new data file (**File / New / Data Editor**).
3. Add data tabs for your different data types (**Data / New Data Items**).

Managing Data Editor Files (DAT)

Data Editor Files Introduction

LogPlot data files are that you create in the Data Editor window are stored on disk as ASCII (text) files with a fairly generic "DAT" file name extension. Within the ASCII file the different kinds of log data are grouped into distinct blocks, and that's how LogPlot distinguishes lithologic descriptions from curve data, from downhole symbols, etc. (The internal structure of the files is discussed in the Reference section.)

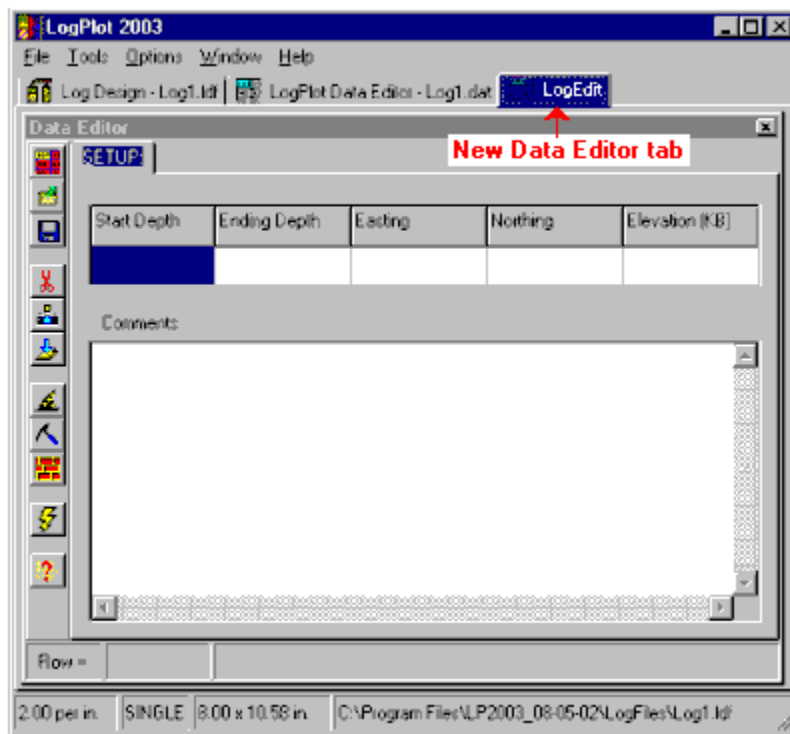
LogPlot2003 now lets you keep more than one data file open at any time. See the topics below for tips on DAT file management (opening, saving, etc.).

Create a New Data File

Follow these steps to create a new data file in LogPlot:

1. From either the Log Designer window or from an existing Data Editor window, click on the **File** menu and click **New**.
2. In the pop-up window, click **Data Editor**.

LogPlot will display a new "LogEdit" data tab.



- At this time you can type or paste in data, add new data elements, and save the file.

! LogPlot also creates a new data window automatically upon program startup.

See also:

Automatic data file tools (page 139).

Open a Data File

To open a LogPlot data file (.DAT) that exists already on disk, follow these steps:

- Click in an existing Data Editor window or (if none are open) create a new Data Editor window.



- In that Data Editor window, select the **Open** button (above) from the Data Editor's toolbar, or the **Open** command from the Data Editor's **File** menu. (See Accessing the Data Editor, previous.)

The program will display a prompt window in which you may specify the file to open. The default file type is ASCII text (DAT). You may also specify "TXT" files. If your text file has another file name extension, select the "All Files" file type, and the program will display all located files.

2. Select the file you wish to open (accessing other drives or directories as necessary) by clicking on the name to highlight it.
3. Click on the **Open** button.

The program will read the file and display the data in the appropriate data tabs in the Editor window.

! LogPlot2003 will open data files that were used in LogPlot v.1 or LogPlot97, and will create the necessary data tabs in which to display the data. However, if your data blocks have errors in their syntax, you may get unpredictable results as the program tries to put them into tabs. LogPlot2003 will open LogPlot98 and LogPlot2001 data files seamlessly, though it will translate all <Space> delimiters to <Tab> characters when the DAT file is saved.

See also:

Adding Data Tabs (below).

Compiling Your Logs (page 163).

Add Data Tabs

If you have a data sheet displayed in the Data Editor (from creating a new file or from opening an existing file), you can add data items to the file.

1. Click on the **New Data Item** command in the Data Editor's **Data** menu.
2. In the pop-up menu that is displayed, click on the type of data page you wish to add. These correspond to the items that might be included in your log design.

The program will prompt you for the item's name, and possibly other information.

3. Enter the requested information and click **OK**.

The program will insert a new data page with the requested name in the Editor.

See Data Tab Summary (page 99) for a summary of the data pages.

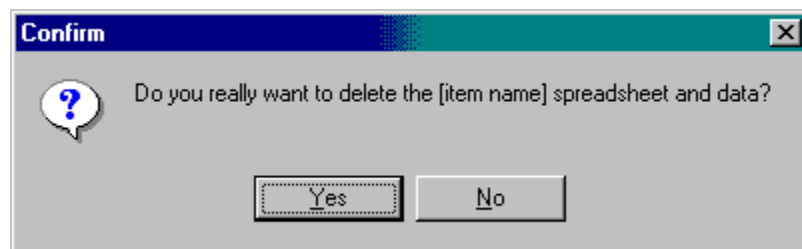
See Deleting Data Items (below) for instructions about removing data tabs.

Delete Data Items

Any time that you wish to delete an entire tab or page of data from the data file currently displayed in the Editor, follow these steps:

1. Click on the tab that you wish to remove, to make it active.
2. Right-click in the body of the data listing and select the **Delete Data Page** command. Or, you can select the **Delete Data Page** command from the **Data** menu.

The program will ask you to confirm this operation:



3. Click on **Yes** if you wish to proceed with the page deletion, or click on **No** to cancel the page deletion.

If you confirmed the operation, the program will remove the entire data tab from the display.

! This command deletes all of the data in the active data tab, and the data tab itself. If you wish to delete *some* of the data from within a tab, simply highlight the text to be removed and press the Delete key on your keyboard.

If you made a mistake, do not save the data file. Instead, use the **File / Open** command to re-open the same data file, answering **NO** to the prompt that asks whether you wish to save the current changes. Be warned, however, that any other editing changes you had made since the last time you saved the file will also be lost.

See also:

Deleting Rows (page 149) for information about deleting rows within a single data tab.

Save a Data File

Changes you have made to the current data file displayed in the Editor can be saved on disk using the **Save** command.



1. Select the **Save** button from the Data Editor's toolbar, or command from the Editor's **File** menu.

If the data file already has a name (as shown in the program title bar), selecting **Save** will save the current version on disk, under the same name.

If the data file is **untitled** (as shown in the program title bar), the program will display a standard Windows Save As dialog box, in which you can specify the name under which the file is to be saved. The default file type is ASCII text with the file extension ".DAT".
2. Type in the name for the file (accessing other drives or directories as necessary).
3. Choose the **OK** button.

The program will save the data in the current Editor window on disk.

If you wish to save an existing file under a *different* file name, use the **Save As** command.

1. Select the **Save As** command from the Data Editor's **File** menu.

The program will display a standard Windows Save As dialog box, in which you can specify the name under which the file is to be saved. The default file type is ASCII text with the file extension ".DAT".

2. Type in the name for the file (accessing other drives or directories as necessary).
3. Choose the **OK** button.

The program will save the data in the current Editor window on disk.

Print a Data File

You may output the data contained in the Editor window to your printer using the **Printer Font**, and **Print** commands (Data Editor's **File** menu).

! To print the plotted log *diagram*, use the View window's Print command.

To print the data file, follow these steps:

1. First, click in the main, upper LogPlot toolbar and select the **Page + Printer Setup** command from the **File** menu. (This is the main, upper toolbar's **File** menu, not the Data Editor's **File** menu.)

This command is used to establish the type of printer you are using. (It's also used to define the paper size for your log, which won't affect data printing.)

In the upper, Printer Info section of the window, be sure the active printer that's listed is the one to which you wish to send the data print job. To change the printer, click on the **Printers** button, and the program will display a dialog box with a pop-up list box containing the printers that are currently installed within Windows. You may select the printer you wish to use. The **Options** button will display additional printer configuration dialog boxes for the selected printer. Many of these options will also be used during log compiling to establish page size.

See your Windows documentation for information about installing printer drivers, and see your printer's documentation regarding specific printer settings.

When you have established the printer settings to your satisfaction, choose the **OK** button to return to the LogPlot menu. Note that once your printer is set up within the program, you will not need to re-select it unless the setup changes in some way.

2. Next, you should click in the Data Editor window. Select the Data Editor's **File / Printer Font** command to establish the font type to be used in printing the data file's text listing.

In the displayed window, select from the available fonts, font styles, sizes, and effects by clicking on your choices.

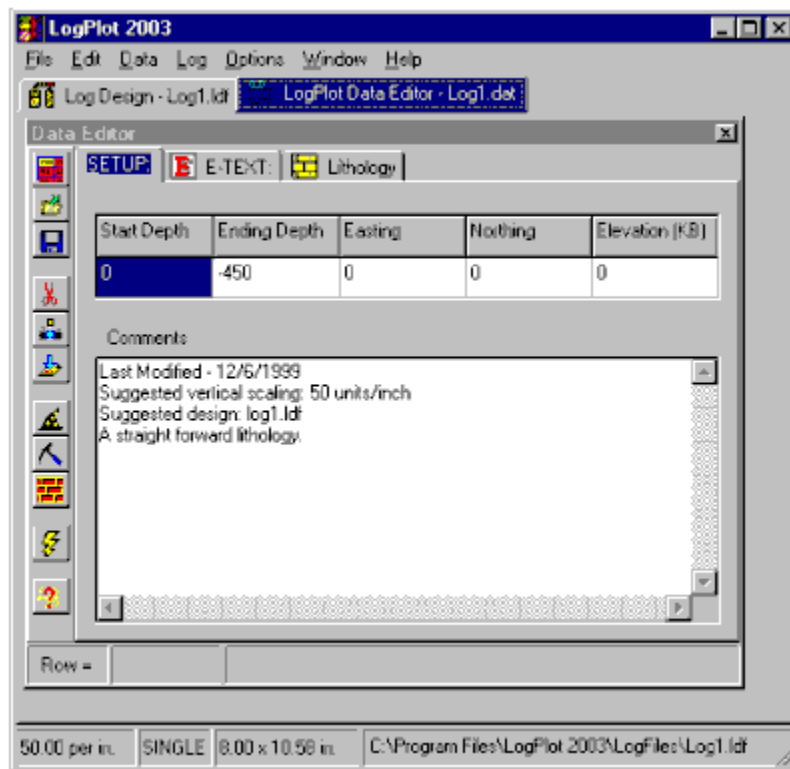
Click on the **OK** button in the Printer Font dialog box to return to the Data Editor window.

3. Then, to send the data file to the selected printer, select the **Print** command from the Data Editor's **File** menu.

When you select this command, the program will display a dialog box displaying print options specific to your printer.

Choose the **OK** button when you are ready to have the file printed.

Note that the file is printed in its continuous text form, as it is stored on disk. It will not be organized into tabular pages as it is displayed in the editor. For example, a file that looks like this in the Editor:



Will look like this when printed on paper:

```

Last Modified - 12/6/1999
:Suggested vertical scaling: 50 units/inch
:Suggested design: log1.lbf
:A straight forward lithology.
SETUP: 0 -450 0 0 0
EDIT-TEXT: Logger
Sam Peabody
LITH: Lithology
0 -18 DOLOSTONE^
-18 -40 SAND^
-40 -45 OIL SHALE^
-45 -95 LIMESTONE^
-95 -147 FINE SAND^
-147 -175 BRECCIA^
-175 -190 CONGLOMERATE^
-190 -205 SILTSTONE^

```

```

-205 -225 LIMESTONE MUDSTONE^
-225 -275 SALT^
-275 -285 DOLOMITIC LIMESTONE^
-285 -307 COAL^
-307 -330 SNOWFLAKE OBSIDIAN^
-330 -375 GRANITE^
-375 -410 SCHIST^
-410 -425 VERY COARSE SANDSTONE^
-425 -450 BASEMENT^
END-DATA:
END-LOG:

```

Close a data window

LogPlot2003 allows you to keep multiple data files open at any time. You can distinguish the data files by their names shown on the stick-up tabs in the Data Editor window.

Follow these steps to close a data file:

1. Access the data window you wish to close.
2. Choose the **File / Close Data Editor** command. Or, click the small "x" in the upper-right corner of that data window.

If there have been changes to this file that have not been saved, the program will prompt you as such. Click **No** to discard any changes and close the window. Click **Yes** to save the file, enter a file name in the displayed window, and click the **Save** button.

The program will close the indicated data file.

Entering the Data

The Data Tabs Themselves

Data Tab Summary

The LogPlot2003 program has a Data Editor window that uses data "tabs" to organize the different kinds of information that can be plotted on the graphic log.

The previous section, Data Editor Files, details how to handle the DAT files themselves, and to add and remove the data tabs.

This section discusses how you set up the data tabs themselves and enter data into them. These are discussed in the following sections.

Setup tab: Required. Used to enter the depths at the top and base of the data file, and the XYZ location coordinates for the drill hole. (Page 101)



Bitmap tab: Used to enter the name of one or more Windows Bitmap (BMP) or JPEG (JPG) graphic files to be inserted into a Bitmap column in the body of the log, and the beginning and ending depths at which they should be plotted. (Page 103)



Cross-Plot Curves tab: Here you may enter depths and two columns of measured values to be plotted in a Cross-Plot Curve column. (Page 105)



Curve tab: In this tab you enter depths and a single column of measured values to be plotted in a Curve column (or a Cross-Plot Curve column) in a log. (Page 107)



Edit-Notes Tab: **NEW!** Used to enter extended, wrappable text in the header or footer of the log. (Page 108)



Edit-Text tab: Used to enter the text to be plotted in the changeable text fields in a log header or footer (names, dates, locations, etc.). (Page 110)



Fillbar tab: In this tab, you can enter depth intervals at which vertical pattern bars will be plotted on the log. (Page 112)



Histogram tab: Used to enter depth intervals and a single column of measured data to be plotted as bar histograms on the log. (Page 113)



Horizontal Line Tab: Used to enter specific depth(s) at which one or more horizontal lines are to be plotted on the log. (Page 115)



Interbed Tab: **NEW!** Used to enter specific depth interval(s) for interbeds that will overplot an existing Lithology Pattern column. (Page 116)



Lithology tab: This tab is used to enter depth intervals and associated lithologic keywords and descriptions for those intervals, to be plotted as patterns in a Lithology Pattern column and/or as text in a Lithology Description column on a log. (Page 118)



Multi-Curve tab: This tab is used to list depths and two or more columns of measured data to be plotted as point to point curves on a log, in a Curve column or a Cross-Plot Curve column. (Page 120)



Multi-Histogram tab: Used to list depth intervals and two or more columns of measured data to be plotted as bar histograms on the log. (Page 123)



Orientation tab: **NEW!** This tab is used to enter any downhole survey for non-vertical wells. Though LogPlot always displays wells as vertical, there's a new tool in the setup of the depth/elevation Scale Bar that allows display of true survey elevations down the log instead of/along with observed depths. (Page 125)



Percent tab: This tab is used to specify the keywords for the rock types to be represented in the Pattern % column, and to list the depth / elevation intervals and the representative percentages of each rock type. (Page 126)



Symbol tab: Used to enter depths and symbol numbers for plotting graphic symbols on a log. (Page 129)



Text-Column tab: This tab is used to enter general text (comments, sample numbers, etc.) and the depth at which it is to be plotted on the log. (Page 131)



Vertical-Text tab: This tab is used to enter depth intervals and text to be plotted vertically in the body of the log. (Page 132)



Well-Column tab: In this tab you enter the depth intervals, inner and outer diameter measurements, and keywords for the well construction materials. (Page 134)

Your LogPlot data files may contain virtually any number and combination of the available data items. In addition, if your data file contains **fewer data items than design items** contained within a particular diagram format, the unused portion of the diagram will simply be left blank. For example, if your data file contains only lithologic descriptions, and you wish to use a diagram format that contains description *and* histogram columns, the histogram columns will be left blank.

You can even compile a data template that has no data yet inserted!

You can also include **more data items than design items** contained in the log format: If, for example, your data file contains both lithologic description and quantitative histogram data, and you wish to plot just a simple lithology log, you may do so.

To cross-check the tabs in the current data file against the entities in the current log design, use the **Data / Check Data against Log Design** command. To update the data file with changes in the current log design use the **Data / Update Data Template from Log Design** tool. **NEW!**

The LogPlot program was shipped with a variety of demo data files (log*.dat) that illustrate the use of the data tabs. These files were installed in the program's "logfiles" sub-directory. Feel free to refer to these files as you read through this documentation and as you construct your own data files. (Each data file also has an associated LogDesign format file - log*.ldf - for your reference in designing logs.) See the sample file summary in the Reference section, page 205.

Setup Tab

Use: This data tab is used to "set up" the data file, establishing the depths at the top and base of the log, and the location coordinates for the drill hole. It also contains a text window for entering comments and notes that you can use for your reference.

Corresponding log design component: There is none.

Right-Click Options: When you right-click in any of the Setup tab's cells, you have the following options:

Cut, Copy, Paste

How to enter the Setup Data

The Setup tab is created automatically each time a new data sheet is created. There can be only one Setup tab per file.

1. Enter the data as illustrated below.

Start Depth	Ending Depth	Easting	Northing	Elevation (KB)
0	-250	1405	2450	343

Comments

Last Modified - 4/3/00
 Created from setup file: Jones-1.lbf
 Suggested vertical scaling: 25 units/inch.

Notes, for your reference only. They are ignored during compilation of the log.

Start Depth, Ending Depth: In these cells, you enter the depth or elevation at the **top** and at the **base** of the log. They are used by the program to define the vertical coordinate system and range for the log. If your data are entered as depths (as opposed to elevations), they are usually entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

! These values may span the entirety of your data or may list just a **subset** of your data in order to plot just a portion of your log.

Prior to compiling a log (**Log / Compile a Log** command) the program will read the top and base declared here and will display them as defaults. You then have the opportunity to override the default settings to plot more or less data.

Easting, Northing: In these cells, you must enter the **x and y location** coordinates for the top of the well. You may use virtually any coordinate system that you wish. If unknown you may set them both to 0.

Elevation (KB): In this cell, you enter the **elevation** at the top of the log. The program will use this to compute elevations if your log design contains an elevation scale bar:

If your data are in depths, this **Elevation** value should represent the elevation at the **Start Depth** of the log. If your data values are in elevations, this variable should be set to 0.

If your log contains no elevation bar, you may enter 0.

For more information, see "Depth versus Elevation," page 136.

Comments: In this scrolling text box, you can enter reference information about the data file. This is typically used to list the names of log formats, keywords, patterns, and/or symbols that correspond to the data file, and to note the vertical scale at which the log should be compiled. These comments are not required.

If you are opening into LogPlot2003 a data file that you used in LogPlot98 or LogPlot v.1, the program will display in this window any comments that were flagged with a colon (":").

Bitmap Tab

Use: The Bitmap tab is used to specify the name of a BMP or JPG graphic file and the beginning and ending depth at which it should be plotted in the Bitmap column in the body of the log. This can be a nifty way to place in a log a bitmapped picture of core samples, fossils, or other graphic images. Multiple bitmaps may be plotted in a single column.

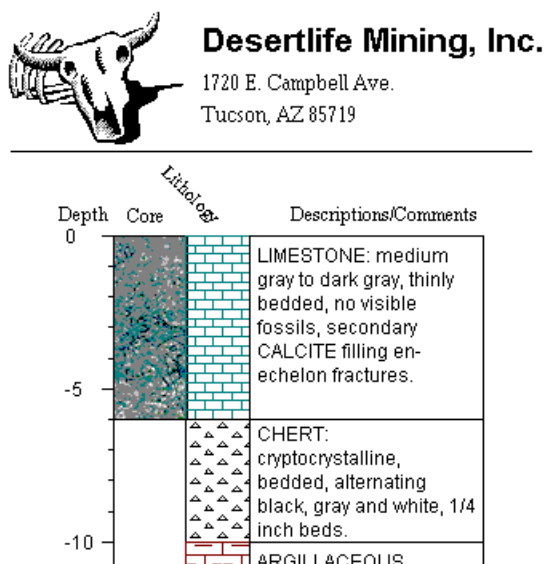
! Bitmaps in the header or footer of the log (logos, etc.) are inserted into the log design itself. See Header/Footer Pictures (page 35).

Corresponding log design component: Data entered into the Bitmap tab will be plotted within the Bitmap column of the same name, if any.

Right-Click Options: When you right-click in any of the Bitmap tab's cells, you have the following options:

Cut, Copy, Paste Rows Columns Fill Interval Column Edit Entity Name Delete Data Page Move

Example: This excerpt from a log illustrates the use of a Bitmap column to show a core sample. The core sample was captured using a digital camera, and the image was saved as a BMP file.



How to enter the Bitmap data

- To add a new Bitmap tab to the current data file, you have two choices:

Automatic: If there's already a Bitmap column in the current log design to which you'll be linking the

data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Bitmap tab in the current data file. The program will know how to name the tab based on the log design information.

Manual: You can also use the **Data / New Data Item / Bitmap** command to manually insert a Bitmap tab.

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Bitmap column in the log design to which this data page is to correspond. In this list the program will show the names of all of the Bitmap columns in the current log design.

Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet a Bitmap tab labeled with the selected name.

2. Enter the data as illustrated below.

Bitmap column identifier, to match
the column name in Log Designer.

Top	Base	Bitmap
0	-6	c:\data\project1\core1.bmp
-39	-43	c:\data\project1\core2.bmp

Depths at top and base of
interval(s) for the picture(s)

Name (and full path) of the
Bitmap (bmp) or JPEG (jpg)
file to be plotted in the
Bitmap column.
(Type in or double-click.)

Name: The name displayed on the Bitmap tab is used to match the data to a particular Bitmap column in the log design. The information entered under the "Fossils" Bitmap tab, for example, will be plotted in the Bitmap column also named "Fossils."

This name is declared when you first create the data page (above) and can be edited using the **Edit / Edit Entity Name** command.

Top, Base: In these columns you must list the depth or elevation and the top and the base of the interval that is to be filled with the Bitmap (BMP or JPG) image. You may list multiple intervals for a single column.

If your data are entered as depths (as opposed to elevations), they are usually entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Bitmap: Here you must list the name (including the full directory path) of the Bitmap (BMP) or JPEG (JPG) file to be plotted in the Bitmap column. You may list multiple files and intervals within a single tab.

! Important Note - Bitmap Resolution: When you set up the Bitmap column in the Log Designer, you can select whether the picture is to be stretched / compressed to fill the full column width and

interval length, or whether it is to be plotted with no resizing. We generally recommend that you activate the resizing, since the plottable size of the bitmap itself will vary depending on the resolution of the output device. For example, on a low resolution screen, the Bitmap might be 5 inches in width and 6 inches in length. When plotted on a 600 dot-per-inch printer, however, the Bitmap's size shrinks to about 1/2 inch in width!

You can use the <Tab> key to advance from cell to cell, and from the end of a row to the next row within the Bitmap data page.

Cross Plot Curves Tab

Use: The Cross-Plot Curves tab is used to enter depths and two columns of measured data to be plotted as point to point curves in a Cross-Plot Curves column.

! Cross-Plot Curves columns can also read data listings from Curve or Multi-Curve tabs.

Corresponding log design component: Data entered into the Cross-Plot Curve tab will be plotted within the Cross-Plot Curve column and/or Curve column of the same name, if any.

Right-Click Options: When you right-click in any of the Cross-Plot Curve tab's cells, you have the following options:

Cut, Copy, Paste Rows Columns Fill Depth Column Edit Multi-Column Headers Delete
Data Page Move

How to enter the Curve data

1. To add a new Cross-Plot Curve tab to the current data file, you have two choices:

Automatic: If there's already a Cross-Plot Curve column in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Cross-Plot Curve tab in the current data file. The program will know how to name the tab's curve headings based on the log design information.

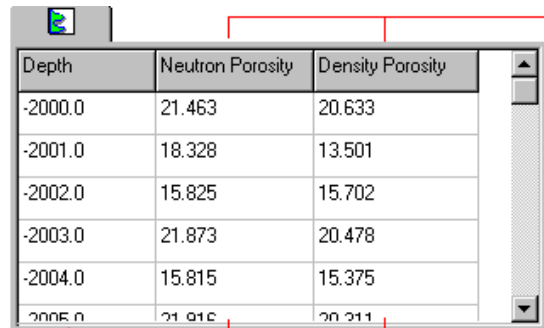
Manual: You can also use the **Data / New Data Item / Cross-Plot Curves** command to manually insert a Cross-Plot Curves tab.

The program will display a window in which you can define the names and order of the curves to be entered. Because this data page references two curve columns, each with its own name, the curve names are listed as the *column* headings in the tab rather than the *tab* heading. Click **OK**. The program will add to the data sheet a Bitmap tab labeled with the name you selected.

For each curve to be listed in this data tab, click on the down-arrow to the right, and select the name of the Curve column or Cross-Plot Curve column to which each is to correspond. In this list the program will show the names of all of the Curve columns and Cross-Plot Curve columns in the current log design.

Click **OK** when the column names are selected. The program will add to the data sheet a Cross-Plot Curves tab.

2. Enter the curve data, as shown in the example below.



Curve column identifiers, to match column names in Log Designer.

Depth	Neutron Porosity	Density Porosity
-2000.0	21.463	20.633
-2001.0	18.328	13.501
-2002.0	15.825	15.702
-2003.0	21.873	20.478
-2004.0	15.815	15.375
-2005.0	21.815	20.211

Depths Measured values

Depth: In this column you must list the depth or elevation at which the measurements were taken.

Shortcut: Right-click on any cell in the Cross-Plot Curves tab and select **Fill Depth Column** to fill the column with regular depth increments.

If your data are entered as depths (as opposed to elevations), they are usually entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Columns 2 & 3: These columns list the actual measurements at the listed depths. These measurements will be plotted as point-to-point curves.

The Column Names

The names displayed as column headers within the Cross-Plot Curves data tab are used to match the data to the curve names in the Cross-Plot Curve column in the log design. For example, the data in the "Neutron Porosity" column will be plotted as declared for the "Neutron Porosity" curve in the log design. These names were entered when the tab was first created, above.

To change the names of the headers, right-click on any cell in the Cross-Plot Curves window, and select the Edit Multi-Column Headers command.

The Data Listing

To enter the actual curve data into the Cross-Plot Curves data page cells, you can use the <Tab> key to advance from cell to cell, and from the end of one row to the beginning of the next.

If there is no data for a depth, you may note this with a non-numeric entry (such as "ND") or you may leave the interval blank. If the curve is to be plotted as a line, the line will be broken where there is no data. If the curve is to be plotted as a filled curve, then the no-data entries will simply be ignored.

Shortcut: If you already have this quantitative data in a tabular format in another application, you can copy the data there and then paste it into the Cross-Plot Curves tab using the **Edit / Paste** command. See also the text and DBF import tools (page 152) to import data directly into this tab.

You can use the <Tab> key to advance from cell to cell, and from the end of a row to the next row within the Cross-Plot Curve tab.

Curve Tab

Use: The Curve tab is used to list depths and a *single* column of measured data to be plotted as a point to point curve. Each Curve Column established in the log format requires a separate Curve tab.

If you wish to list *multiple* columns of data for each depth, see the Multi-Curve tab (page 120).

Corresponding log design component: Quantitative data declared with this command will be plotted on the log in the Curve Column of the same name, or in a Cross-Plot Curve column with the same name.

Right-Click Options: When you right-click in any of the Curve tab's cells, you have the following options:

Cut, Copy, Paste Rows Columns Fill Depth Column Edit Entity Name Delete Data Page
Move

How to enter the Curve data

- To add a new Curve tab to the current data file, you have two choices:

Automatic: If there's already a Curve column or a Cross-Plot Curve column in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Curve tab in the current data file. The program will know how to name the tab based on the log design information.

Manual: You can also use the **Data / New Data Item / Curve** command to manually insert a Curve tab.

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Curve or Cross-Plot Curve column in the log design to which this data page is to be linked. In this list the program will show the names of all of the applicable columns in the current log design.

Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet a Curve tab labeled with the selected name.

- Enter the data as described below. This example is extracted from the sample file "mudlog1.dat."

Curve column identifier, to match
the column name in Log Design

drilling rate		Total Gas	
Depth	Value	Depth	Value
-16720.00	32.00	-16720.00	1.40
-16721.00	35.00	-16721.00	1.30
-16722.00	32.00	-16722.00	1.80
-16723.00	34.00	-16723.00	1.80
-16724.00	36.00	-16724.00	1.80

Depth Measured value Depth Measured value

Name: The name displayed on the data tab is used to match the data to a particular curve column in the log design. This name is declared when you first create the data page (above) and can be edited using the right-click editing options.

Depth: In this column you must list the depth or elevation at which the measurements were taken. If your data are entered as depths (as opposed to elevations), they are usually entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Shortcut: Right-click on any cell in the Curve tab and select **Fill Depth Column** to fill the column with regular depth increments.

Value: In this column you enter the quantitative values, measured at the indicated depths, to be represented on the log as a curve.

If there is no data for a depth, you may note this with a non-numeric entry (such as "ND") or you may leave the interval blank. If the curve is to be plotted as a line, the line will be broken where there is no data. If the curve is to be plotted as a filled curve, then the no-data entries will simply be ignored.

Shortcut: If you already have this quantitative data in a tabular format in another application, you can copy the data there and then paste it into the Curve tab using the **Edit / Paste** command. See also the text and DBF import tools (page 152) to import data directly into this tab.

You can use the <Tab> key to advance from cell to cell, and from the end of a row to the next row within the Curve tab.

Edit-Notes Tab

Use: **NEW!** The Edit-Notes tab is used to enter text to be displayed in an "Edit Notes" entity in the log header or footer. This is text that uses WYSIWYG wrapping, carriage returns, margins, border, fill, and alignment. Such Edit Notes might be used to enter detailed comments about the current well.

Corresponding log design component: Text listed in this tab will be plotted on the log within the Edit Notes item of the same name.

Restrictions: Each Notes entry is limited to 2048 characters.

Right-Click Options: When you right-click in any of the Notes tab's cells, you have the following options:

Cut, Copy, Paste	Rows	Columns	Fill Depth Column	Edit Entity Name	Delete Data Page
Delete Note	Move				




Example:

N-TEXT:

Entity Name	Enter Text (Double Click for Editor)
Well Notes	Enter day's drilling notes here

Default text is shown in tab.
Double-click to enter the day's notes.

Description Editor



Steady rain throughout the day hampered drilling.
Make note of the 5 to 7 foot interval.

Type in the day's notes. You can use the Enter key to add paragraphs.

Maximum of 2000 characters? HelpX Cancel✓ OK

DRILL HOLE # Sierra-1



LocationGolden, Colorado

DirectionVertical

Drilling ContractorRW Drilling

Logged ByJMD

Steady rain throughout the day hampered drilling.
Make note of the 5 to 7 foot interval.

Depth (m)	Sample No.	Lithology	LITHOLOGIC DESCRIPTION	Weathering	Rock Hardness	Pt Load	UCS
				1	3	5	
0			CLAY AND SAND: Sandy, brown, Clay.	42			
1			LIMESTONE: Grey, medium to fine grained, crystalline limestone	36			

How to enter the Notes

- To add a new Edit-Notes tab to the current data file or a new Edit-Notes entry to an existing tab, you have two choices:

Automatic: If there's already a Note item in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Note entity in the current data file. The program will know how to name the item based on the log design information.

Manual: You can also use the **Data / New Data Item / Edit-Note** command to manually insert a new tab or a new entry into an existing tab. (Only one Notes tab is permitted.)

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Edit-Note item in the log design to which this entry is to be linked. In this list the program will show the names of all of the Edit-Note items in the current log design.

Or, just type in a name for the item.

Click **OK**.

2. Enter the information:

Name: The names displayed in this column are used to match the text items to a particular Edit Note entity in the log design. For example, the text on a row labeled "Driller's Notes" will be plotted in the Note block named "Driller's Notes" in the log's design. This name is declared when you first add the Note item (above) and can be edited using the **Edit / Edit Entity Name** command.

Text: In this column, you enter the text to be plotted. Double-click in the cell to display a Description Editor where you can type in the text. LogPlot allows you to format your text with spaces and paragraphs. In the Description Editor window, simply add spaces or carriage returns (paragraph markers using the Enter key) to format your text. (See also page 142.)

You can use the <Tab> key to advance from cell to cell within the Text-Column tab.

Edit-Text Tab

Use: The Edit-Text tab is used to enter the text to be plotted in the changeable text fields in the log header and footer. This is typically used to note names, dates, locations, etc.


Corresponding log design component: Text declared in this tab will be plotted in the header or footer portion of the log within the Edit Text fields of the same names.

Restrictions: There is a 120 character limit (including spaces) on text entries. The Edit Text entries will not wrap when displayed on the log. If you need to enter long text that will wrap, check out the new Edit-Notes data item, above.

Right-Click Options: When you right-click in any of the Edit-Text cells, you have the following options:

Cut, Copy, Paste Rows Columns Edit Entity Name Delete Data Page Delete Edit-Text
Move

Example: The following excerpt from the compiled "enviro-geotech5.dat" file illustrates Edit Text fields in red in the header of a log.

 TriStar Environmental Integrated Environmental Solutions	
PROJECT INFORMATION	
PROJECT	Bandolier Gas Station
SITE LOCATION	3300 W. Rimrock Drive
JOB NO.	10-001-01
LOGGED BY	Zachary Smith
PROJECT MANAGER	Bruce Stuart
DATES DRILLED:	6-02-93 to 6-03-93
NOTES: One hot, dusty day!	

How to enter the Edit-Text data.

1. To add an Edit-Text tab to the current data file, or to add a new entry to an existing Edit-Text tab, you have two choices:

Automatic: If there's already an Edit-Text label in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert the new Edit-Text entity to the current data file. The program will know how to name the item based on the log design information.

Manual: You can also use the **Data / New Data Item / Edit-Text** command to manually insert a new tab or a new entry into an existing tab. (Only one Edit-Text tab is permitted.)

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Edit-Text item in the log design to which this entry is to be linked. In this list the program will show the names of all of the Edit-Text items in the current log design.

Or, just type in a name for the item.

Click **OK**.

The program will add to the data sheet an Edit-Text tab if none already exists. In the tab, the newest entry will be labeled with the selected name. If an Edit-Text tab already exists, the entry will be added to the existing tab.

2. Enter the data, as illustrated below. This example is from the sample file "Enviro-geotech5.dat."

E-TEXT:

Name:	Text (up to 60 characters)
project	Bandolier Gas Station
location	3300 W. Rimrock Drive
job #	10-001-01
logger	Zachary Smith
manager	Bruce Stuart
dates drilled	6-02-93 to 6-03-93
notes	One hot, dusty day!

Edit-Text item name, to match the field name in Log Designer

Text to plot in header or footer. (Type in or double-click.)

Name: The names displayed in this column are used to match the text items to a particular Edit-Text entity in the log design. For example, the text on the row labeled "project" will be plotted in the Edit-Text item named "project" in the log's design. This name is declared when you first add the Edit-Text item (above) and can be edited using the **Edit / Edit Entity Name** command.

Text: In this column, you enter the text to be plotted. The text can be up to 120 characters, including spaces.

You can use the <Tab> key to advance from cell to cell, and from the end of a row to the next row within the Edit-Text tab.

Fillbar Tab

Use: The Fillbar tab is used to enter depth intervals at which vertical pattern bars will be plotted on the log. These may represent sampling intervals, coring, or qualitative information ("poor show" or "trace").

Corresponding log design component: Data declared with this command will be plotted on the log in the Fillbar Column of the same name.

Right-Click Options: When you right-click in any of the Fillbar tab's cells, you have the following options:

Cut, Copy, Paste Rows Columns Fill Interval Column Edit Entity Name Delete Data Page Move

How to enter the Fillbar data

- To add a new Fillbar tab to the current data file, you have two choices:

Automatic: If there's already a Fillbar column in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Fillbar tab in the current data file. The program will know how to name the tab based on the log design

information.

Manual: You can also use the **Data / New Data Item / Fillbar** command to manually insert a Fillbar tab.

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Fillbar column in the log design to which this data page is to correspond. In this list the program will show the names of all of the Fillbar columns in the current log design.

Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet a Fillbar tab labeled with the selected name.

2. Enter the fillbar information, as shown below. This example is from the demo file "mudlog1.dat."

Fillbar column identifier, to match the column name in Log Designer.

trace		Cores	
Top	Base	Top	Base
-16820	-16858	-16820	-16840
		-16845	-16852

Depths at top and base of interval for "trace" column Depths at top and base of interval for "cores" column

Name: The name displayed on the data tab is used to match the data to a particular Fillbar column in the log design. This name is declared when you first create the data page (above) and can be edited using the **Data / Edit Entity Name** command.

Top, Base: In these columns you must list the depth or elevation at the top and the base of the interval that is to be filled with a pattern. You may list multiple intervals for a single column.

If your data are entered as depths (as opposed to elevations), they are usually entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

You can use the <Tab> key to advance from cell to cell, and from the end of a row to the next row within the Fillbar tab.

Histogram Tab

Use: The Histogram tab is used to enter depth intervals and a *single* column of measured data to be plotted as bar histograms. Each Histogram column established in the log format requires a separate Histogram data tab. Data listed in the Histogram tab can also be read and displayed as labels in a Histogram Value column.

If you wish to list *multiple* columns of data for each depth, see the Multi-Histogram tab (page 123).

Corresponding log design component: Quantitative data declared in this tab will be plotted on the log in the Histogram column or the Histogram Value column of the same name.

Right-Click Options: When you right-click in any of the Histogram tab's cells, you have the following options:

Cut, Copy, Paste Rows Columns Fill Interval Column Edit Entity Name Delete Data
Page Move

How to enter the Histogram data

- To add a new Histogram tab to the current data file, you have two choices:

Automatic: If there's already a Histogram column in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Histogram tab in the current data file. The program will know how to name the tab based on the log design information.

Manual: You can also use the **Data / New Data Item / Histogram** command to manually insert a Histogram tab.

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Histogram column in the log design to which this data page is to be linked. In this list the program will show the names of all of the Histogram columns in the current log design.

Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet a Histogram tab labeled with the selected name.

- Enter the histogram data. The example, shown below, is from the sample file mining3.dat.

Histogram column identifier,
to match the column name
in Log Designer

Silver		
Top	Base	Value
0	-5	0.06
-5	-10	0
-10	-15	0
-15	-20	0
-20	-25	0.06
-25	-30	0

Depths at top and
base of intervals
Measured
values

Name: The name displayed on the data tab is used to match the data to a particular Histogram column in the log design. This name is declared when you first create the data page (above) and can be edited using the **Data / Edit Entity Name** command.

Top, Base: In these columns you must list the depth or elevation at the top and the base of the

interval at which the measurements were taken. If your data are entered as depths (as opposed to elevations), they are usually entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Shortcut: Right-click on any cell in the Histogram tab and select **Fill Interval Column** to fill the columns with regular depth increments.

Value: In this column you enter the quantitative values, measured at the indicated depths, to be represented on the log as a curve.

If there is no data for a depth interval, you can note this with a non-numeric entry (such as "ND") or you can leave the interval blank. That histogram interval will just be omitted from the column.

Shortcut: If you already have this quantitative data in a tabular format in another application, you can copy the data there and then paste it into the Histogram tab using the **Edit / Paste** command. See also the text and DBF import tools (page 152) to import data directly into this tab.

You can use the <Tab> key to advance from cell to cell, and from the end of a row to the next row in the tab.

Horizontal Line Tab

Use: The Horizontal Line tab is used to enter one or more depth levels at which a horizontal line is to be plotted across a portion of the log, or across the entire log, as set up in the log design. This is often used to create a solid line at the lowest depth in the log. If a second, unequal depth is specified in this tab, then the line will be plotted at an angle between the two depths.

! In the log design, you can request that the horizontal line be plotted at regular depth increments, in addition to the manually-declared depths done here. If you want the lines plotted at regular intervals only, you need not create a data tab.

Corresponding log design component: Horizontal line depths declared in this tab will be plotted on the log in the Horizontal Line column of the same name.

Right-Click Options: When you right-click in any of the Horizontal Line tab's cells, you have the following options:

Cut, Copy, Paste	Rows	Columns	Fill Interval Column	Edit Entity Name	Delete Data
Page	Move				

How to enter the horizontal line data

1. To add a new Horizontal Line tab to the current data file, you have two choices:

Automatic: If there's already a Horizontal Line item in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Horizontal Line tab in the current data file. The program will know how to name the tab based on the log design information.

Manual: You can also use the **Data / New Data Item / Horizontal Line** command to manually insert a Horizontal Line tab.

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Horizontal Line item in the log design to which this data page is to correspond. In this list the program will show the names of all of the Horizontal Line entities in the current log design.

Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet a Horizontal Line tab labeled with the selected name.

2. Enter the data.

Left Depth (default): Here you enter the depth at which the horizontal line or lines is/are to be plotted. If, for example, you wanted a single horizontal line plotted at the final depth of your log, you would type in that depth here.

If your data are entered as depths (as opposed to elevations), they are usually entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Right Depth: Optional. If this column is left blank, the program will assume the line is to be plotted horizontally at the depth declared in the Left Depth column. If, however, you want the line plotted at an angle between two depths, you can enter the depth for the right side of the line here.

You can use the <Tab> key to advance from cell to cell, and from the end of a row to the next row in the tab.

Interbed Tab

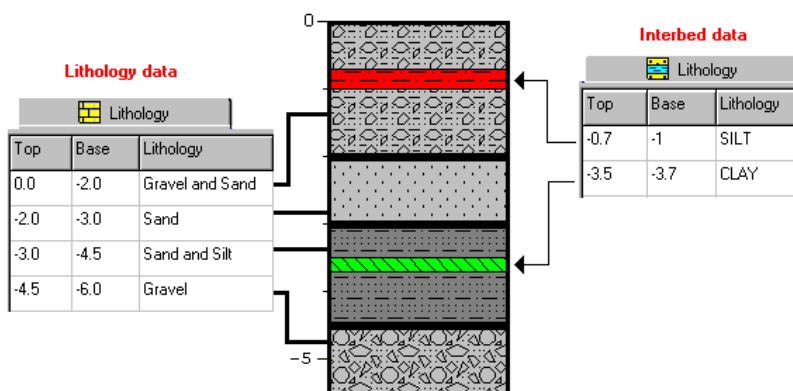
Use: The Interbed tab is used to define interbed zones to plot as patterns within a Lithology Pattern column that has the same name. The interbeds are declared with keywords, just like the Lithology intervals. However, interbed text is not displayed.

Corresponding log design component: Interbed patterns will be plotted on the log in the Lithology Pattern column of the same name.

Right-Click Options: When you right-click in any of the Interbed tab's cells, you have the following options:

Cut, Copy, Paste Rows Columns Edit Entity Name Delete Data Page Move

Example: This example illustrates 4 lithology intervals (left) with two interbeds declared (right). Notice how both data tabs are named "Lithology."



How to enter the interbed data

1. To add a new Interbed tab to the current log design, select the **Data / New Data Item / Interbeds** command. (There is no automatic method of inserting Interbed tabs because they are linked to Lithology Pattern columns.)
2. **Entity Name:** In the displayed window, click on the down-arrow to the right, and select the name of the Lithology Pattern column to which this entry is to correspond. In this list the program will show the names of all of the Lithology Pattern columns in the current log design.

If you don't have a design selected, or if your design's Pattern column names aren't displayed, click the **Cancel** button. Access the **Options** menu from the main program toolbar, select the **Log Settings** option, and select the log design to be used. Then try adding the Interbeds tab again.

The **Entity Name** prompt will also allow you to simply type in a name.

3. Click **OK**.

The program will add to the data sheet an Interbed tab labeled with the name you entered.

4. Enter the data, as described below.

Name: The name displayed on the data tab is used to match the data to a particular Lithology Pattern column in the log design. This name is declared when you first create the data page (above) and can be edited using the **Data / Edit Entity Name** command.

Top, Base: In these columns you must list the depth or elevation at the top and the base of the interbed interval being described on that row. If your data are entered as depths (as opposed to elevations), they are typically entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Lithology: In this column you type in the "keyword" for the interval. Keywords may be comprised of one or more words, and are limited to 60 characters including spaces.

Shortcut: Rather than typing in the keyword name, just double-click on the keyword cell to bring up the Lithology Selector window. Here you can pick from the available keywords in the current keyword file and view the pattern that is associated with them.

You can use the <Tab> key to advance from cell to cell, and from the end of a row to the next row within the tab.

Lithology Tab

Use: The Lithology tab is used to enter a set of lithologic descriptions for a Lithology Pattern column and/or Lithology Description column that have the same name. LogPlot compares the declared keyword to those listed in the keyword file. If a keyword match is made, the pattern declared for that keyword will be plotted in the Lithology Pattern column for that interval. Any short or extended description text can be plotted in the Lithology Description column. (New to LogPlot2003 is the ability to disable the plotting of the keyword or the extended description in the Description column. This is set up in the Log Designer.)

! If you wish to plot text that is not associated with lithologic information and has no keywords (such as comments, text measurements, etc.), then you should use the Text-Column tab (page 131). Text that is to be plotted vertically in the body of the log is entered using the Vertical-Text tab (page 132). Text labels that are associated with Histogram columns are entered in a Histogram tab (page 113). If you want to plot interbedded pattern blocks, use the Interbed tab (page 116).

Corresponding log design component:

- * Keywords listed in the **Lithology** column of the Lithology tab are linked to graphic patterns. These patterns will be plotted in the Lithology Pattern column of the same name, if any, in the log design. The keywords themselves can be plotted in the Lithology Description column, or they can be omitted, as declared in the Log Designer.
- * Descriptions entered in the **Description** column of the Lithology tab will be plotted within the Lithology Description column of the same name, if any, in the log design. Descriptions may be short or extended, and are optional.

Restrictions: There is a limit of 60 characters, including spaces, for keywords. There is a limit of 2000 characters, including spaces, for extended descriptions.

Right-Click Options: When you right-click in any of the Lithology tab's cells, you have these options:

Cut, Copy, Paste Rows Columns Fill Interval Column Edit Entity Name Delete Data
Page Move

How to enter the lithology data

1. To add a new Lithology tab to the current data file, you have two choices:

Automatic: If there's already a Lithology Pattern or Lithology Description column in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Lithology tab in the current data file. The program will know how to name the tab based on the log design information.

Manual: You can also use the **Data / New Data Item / Lithology** command to manually insert a Bitmap tab.

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Lithology Pattern and/or Lithology Description columns in the log design to which this data page is to be linked. In this list the program will show the names of all of the pattern

and description columns in the current log design.

Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet a Lithology tab labeled with the selected name.

2. Enter the data, as described below.

Lithology Description and/or Pattern column identifier, to match the name(s) in Log Designer				
Top	Base	Lithology	Contact	Description (up to 2000 Characters)
-2000	-2006	Limestone		medium gray to dark gray, thinly bedded
-2006	-2010	Chert		cryptocrystalline, bedded, alternating b
-2010	-2014	Argillaceous Limestone	---	buff, minor echinoids.
-2014	-2019	SANDSTONE		white orthoquartzite, very well rounded
-2019	-2023	Quartz Latite		crystal fragments in DEVITRIFIED gla
-2023	-2028	Calcareous Dolomite		gray to cream, finely crystalline, no visi
-2028	-2031	LOST CIRCULATION	NO SAMPLE RECOVERED.
-2031	-2036	Dolomite	light gray, fine grained, quartz stringers
-2036	-2039	Shale		gray, abundant PYRITE, CHLORITIZE

Depth at top and base of intervals

Keyword for intervals (type in or double-click)

Optional contact lines for top of interval

Optional description for intervals (type in or double-click)

Name: The name displayed on the data tab is used to match the data to a particular Lithology Pattern and/or Lithology Description column in the log design. This name is declared when you first create the data page (above) and can be edited using the **Data / Edit Entity Name** command.

Top, Base: In these columns you must list the depth or elevation at the top and the base of the lithologic interval being described on that row. If your data are entered as depths (as opposed to elevations), they are typically entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Shortcut: Right-click on any data column in the Lithology tab and select **Fill Interval Column**.

Lithology: In this column you type in the "keyword" for the interval. Keywords may be comprised of one or more words, and are limited to 60 characters including spaces.

Shortcut: Rather than typing in the keyword name, just double-click on the keyword cell to bring up the Lithology Selector window. Here you can pick from the available keywords in the current keyword file and view the pattern that is associated with them.

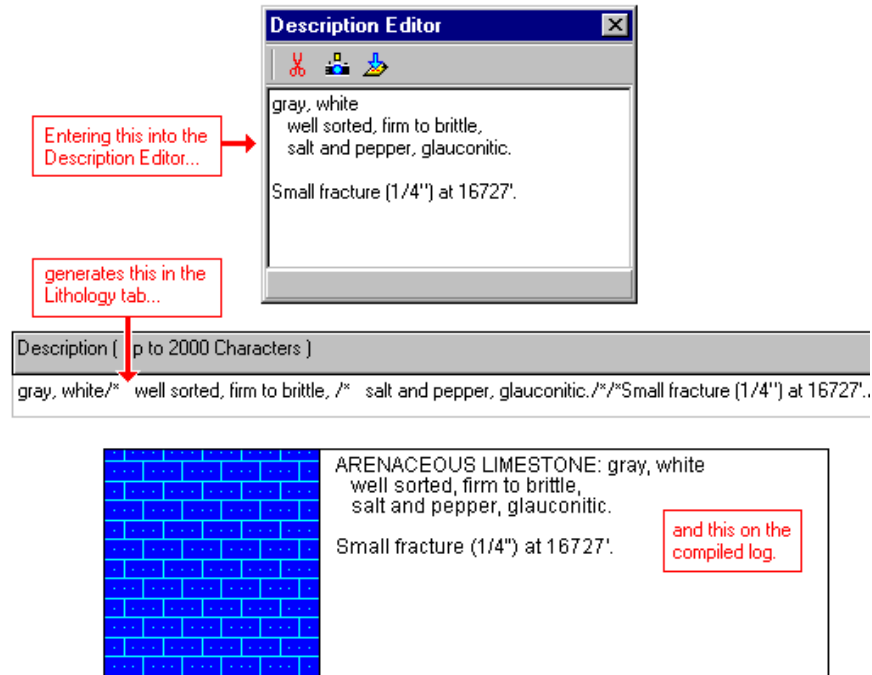
Contact: **NEW!** Double-click in this column to specify a customized contact line for the top of the listed interval. This line will be plotted between pattern blocks and between description blocks if present and if description divider lines are enabled.

Description: In this column, you may type in any extended description that you wish to have plotted in the Description column of the log design. There is a limit to 2000 characters including spaces.

Shortcut: Rather than typing the extended description into the Lithology tab cell, you can

double-click on the description cell to bring up the Description Editor window.

New to LogPlot2003 is the ability to format your descriptive text with spaces and paragraphs. In the Description Editor window, simply add spaces or carriage returns (paragraph markers using the Enter key) to format your text. If you are typing the descriptions in the Lithology tab's cell, use these characters (a forward slash followed by an asterisk) to note a hard carriage return: /*



You can use the <Tab> key to advance from cell to cell, and from the end of a row to the next row within the tab.

Multi-Curve Tab

Use: The Multi-Curve tab is used to list depths and two or more columns of measured data to be plotted as point to point curves in a Curve column or a Cross-Plot Curves column.

If you wish to list just a *single* column of data for each depth, see the Curve tab (page 107).

Corresponding log design component: Quantitative data declared with this command will be plotted on the log in a Curve column or Cross-Plot Curves column of the same names. Extra curve data will be ignored.

Right-Click Options: When you right-click in any of the Multi-Curve tab cells, you have the following options:

Cut, Copy, Paste Rows Columns Fill Depth Column Edit Entity Name Delete Data Page Move

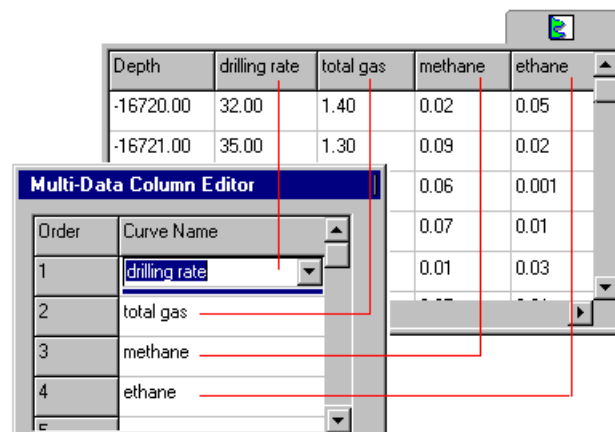
Example: See the sample file "geophysical3.dat" for an example of the use of a multi-curve tab.

How to enter the multi-curve data

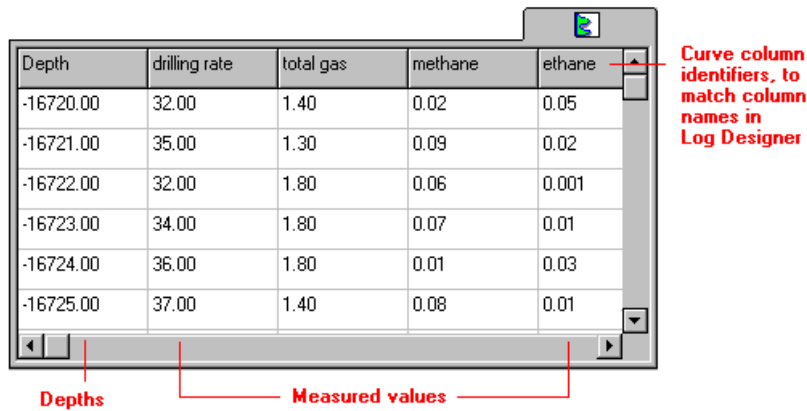
1. To add a new Multi-Curve tab into the current data file, select the **Data / New Data Item / Multi-Curve** command. (There is no automatic means of inserting Multi-Curve tabs; the **Update Data Template from Log Design** tool creates single-Curve tabs for all Curve columns.)

The program will display a window in which you can define the names and order of the curves to be entered. Because this data page references multiple curve columns, each with its own name, the curve names are listed as the *column* headings in the tab rather than the *tab* heading.

2. For each curve to be listed in this data tab, click on the down-arrow to the right, and select the name of the Curve column or Cross-Plot Curve column to which each is to correspond. In this list the program will show the names of all of the Curve columns and Cross-Plot Curve columns in the current log design.



3. Click **OK** when the column names are selected.
4. Enter the curve data, as shown in the example below.



Depth	drilling rate	total gas	methane	ethane
-16720.00	32.00	1.40	0.02	0.05
-16721.00	35.00	1.30	0.09	0.02
-16722.00	32.00	1.80	0.06	0.001
-16723.00	34.00	1.80	0.07	0.01
-16724.00	36.00	1.80	0.01	0.03
-16725.00	37.00	1.40	0.08	0.01

Curve column identifiers, to match column names in Log Designer

Depths Measured values

Depth: In this column you must list the depth or elevation at which the measurements were taken.

Shortcut: Right-click on any cell in the Multi-Curve tab and select **Fill Depth Column** to fill the column with regular depth increments.

If your data are entered as depths (as opposed to elevations), they are usually entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Columns 2 - 41: These columns list the actual measurements at the listed depths. These measurements will be plotted as point-to-point curves.

The Column Names

The names displayed as column headers within the Multi-Curve data tab are used to match the data to particular curve columns in the log design. For example, the data in the "drilling rate" column will be plotted in the Curve Column named "drilling rate" in the log's design, and the data in the "total gas" column will be plotted in the "total gas" Curve Column in the log's design. These names were entered when the tab was first created, above.

To change the names of the headers, or to add or remove headers, right-click on any cell in the Multi-Curve window, and select the Edit Multi-Column Headers command.

The Data Listing

To enter the actual curve data into the Multi-Curve data page cells, you can use the <Tab> key to advance from cell to cell, and from the end of one row to the beginning of the next as you type in the values.

If there is no data for a depth, you may note this with a non-numeric entry (such as "ND") or you may leave the interval blank. If the curve is to be plotted as a line, the line will be broken where there is no data. If the curve is to be plotted as a filled curve, then the no-data entries will simply be ignored.

Shortcut: If you already have this quantitative data in a tabular format in another application, you can copy the data there and then paste it into the Multi-Curve tab using the **Edit / Paste** command. You can also import DBF or text data into the tab using the File / Import tools (page 152).

Multi-Histogram Tab

Use: The Multi-Histogram tab is used to list depth intervals and two or more columns of measured data to be plotted as bar histograms in a Histogram Column. Data listed can also be displayed as labels in a Histogram Value column.

If you wish to list just a *single* column of data for each depth interval, see the Histogram tab (page 113).

Corresponding log design component: Quantitative data declared with this command will be plotted on the log in the Histogram columns of the same names. Any extra histogram columns in the tab will be ignored.

Right-Click Options: When you right-click in any of the Multi-Histogram tab cells, you have the following options:

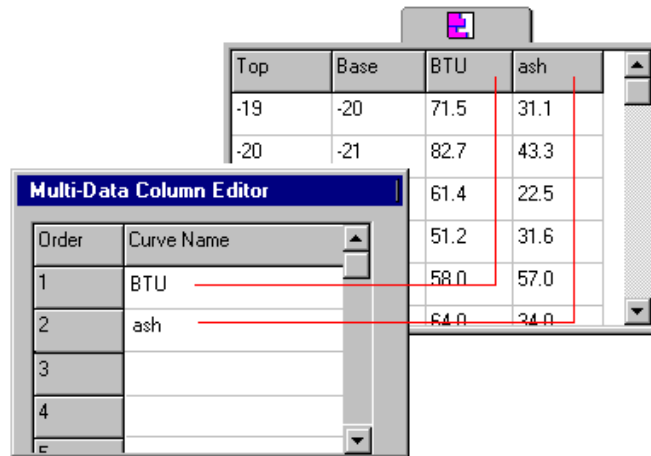
Cut, Copy, Paste Rows Columns Fill Interval Column Edit Entity Name Delete Data Page Move

How to enter the multi-histogram data

1. To add a new Multi-Histogram tab to the current data file, select the **Data / New Data Item / Multi-Histogram** command. (There is no automatic means of inserting Multi-Histogram tabs; the **Update Data Template from Log Design** tool creates single-Histogram tabs for all Histogram columns.)

The program will display a window in which you can define the names and order of the histograms to be entered. Because this data page references multiple histogram columns, each with its own name, the histogram names are listed as the *column* headings in the tab rather than the *tab* heading.

2. For each histogram to be listed in this data tab, click on the down-arrow to the right, and select the name of the Histogram column to which each is to correspond. In this list the program will show the names of all of the Histogram columns in the current log design.



3. Click **OK** when the column names are selected.

The program will add to the data sheet a Multi-Histogram tab. Because this data page references multiple histogram columns, each with its own name, the histogram names are listed as the *column* headings in the tab rather than the *tab* heading.

4. Enter the quantitative data. An example is shown below.

Top	Base	BTU	ash
-21	-22	61.4	22.5
-22	-23	51.2	31.6
-48	-49	58.0	57.0
-49	-50	64.0	34.0
-50	-51	76.0	17.0
-51	-52	25.0	35.0

Top, Base: In these columns you must list the depth or elevation at the top and base of the intervals at which the measurements were taken.

Shortcut: Right-click on any cell in the Multi-Histogram tab and select **Fill Interval Column** to fill the columns with regular depth increments.

If your data are entered as depths (as opposed to elevations), they are typically entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Columns 3 - 42: These columns list the actual measurements at the listed depth intervals. These measurements will be plotted as bar histograms.

The Column Names

The names displayed as column headers within the Multi-Histogram data tab are used to match the data to particular histogram columns in the log design. For example, the data in the "BTU" column will be plotted in the Histogram Column named "BTU" in the log's design, and the data in the "ash" column will be plotted in the "ash" Histogram Column in the log's design.

To change the names of the headers, or to add or remove headers, right-click on any cell in the Multi-Histogram window, and select the Edit Multi-Column Headers command.

The Data Listing

To enter the actual histogram data into the Multi-Histogram data page cells, you can use the <Tab> key to advance from cell to cell, and from the end of one row to the beginning of the next.

If there is no data for a depth interval, you may note this with a non-numeric entry (such as "ND") or you may leave the interval blank. That histogram interval will just be omitted from the column.

Shortcut: If you already have this quantitative data in a tabular format in another application, you can copy the data there and then paste it into the Multi-Histogram tab using the **Edit / Paste** command. You can also import DBF or text data into the tab using the File / Import tools (page 152).

Orientation Tab

Use: **NEW!** The Orientation tab is used to enter downhole survey information for non-vertical wells. This information can be reflected on a strip log scale bar that's linked to the Orientation data tab.

! LogPlot logs are always plotted as vertical, but the true elevations for any well deviation can be reflected on the scale bar.

Corresponding log design component: Downhole survey information will be represented on the log in an elevation scale bar that's linked to this data tab.

Restrictions: There can be only one Orientation tab per file.

Right-Click Options: When you right-click in any of the Orientation tab's cells, you have the following options:

Cut, Copy, Paste Rows Columns Fill Depth Column Edit Entity Name Delete Data Page
Move

How to enter the orientation data

1. To add an Orientation tab to the current data file, you have two choices:

Automatic: If there's already a Scale Bar in the current log design that is set up to display survey elevations, with a name defined, you can use the **Data / Update Data Template from Log Design** tool to insert an Orientation tab in the current data file. The program will know how to name the tab based on the log design information.

Manual: You can also use the **Data / New Data Item / Orientation** command to manually insert a tab.

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name that has been defined in the Scale Bar settings in the log design, to which this data page is to be linked.

Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet an Orientation tab labeled with the selected name.

2. Enter the downhole survey data.

Depth: Enter here the depths at which the downhole survey measurements were taken. These must be entered as depths rather than elevations. You can enter either positive or negative depths but you must be consistent with the format of the other log data.

Bearing: Type in the bearing of the well at the listed depths. The bearings must be expressed in

azimuth degrees (0 to 360, with 0 = north).

Inclination: Type in the inclination of the well at the listed depths. The inclination data follows either a "**dip from horizontal**" convention in which 0 is a horizontal line, -90 points straight down, and +90 points straight up, or a "**dip from vertical**" convention in which 0 is straight down and +90 is horizontal. (The data convention is established in the log design.)

This example illustrates Dip from Horizontal data format.

Orientation		
Depth	Bearing	Inclination
0	270	-90
-50	270	-90
-62	270	-60
-76	270	-30
-91	270	0

Depth at which downhole survey was taken

Inclination angle of well, where 0 = horizontal -90 = straight down

Bearing of well, 0 to 360 degrees, 0 = north

There is no limit to the number of survey points you can list for the well.

Survey data must be listed in order, from the start of the well to the end.

Percent Tab

Use: The Percent tab is used to specify the keywords for the rock types to be represented in a Pattern Percent column, and to list the depth / elevation intervals and the representative percentages of each rock type.

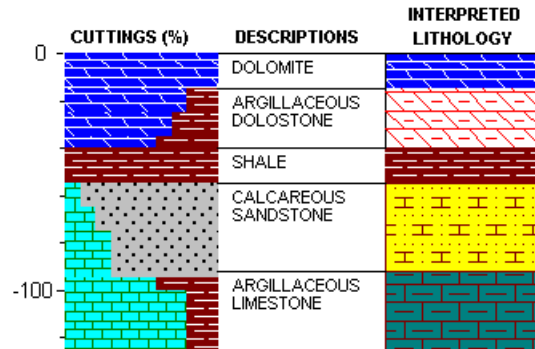
Corresponding log design component: Percentage data listed in the Percent tab will be plotted within the Pattern Percent column of the same name, if any, in the log design.

Restrictions: You may specify up to 20 keywords per Percent tab.

Right-Click Options: When you right-click in any of the Percent tab cells, you have the following options:

Cut, Copy, Paste Rows Columns Fill Interval Column Edit Entity Name Delete Data Page Move

Example: This is a modified excerpt from the sample Lithology3 file showing the use of a Pattern Percent column to illustrate relative lithologies measured from the drill cuttings.



How to enter the percent data

- To add a new Percent tab to the current data file, you have two choices:

Automatic: If there's already a Pattern Percent column in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Percent tab in the current data file. The program will know how to name the tab based on the log design information.

Manual: You can also use the **Data / New Data Item / Percent** command to manually insert a Percent tab.

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Pattern Percent column in the log design to which this data page is to be linked. In this list the program will show the names of all of the Pattern Percent columns in the current log design.

Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet a Percent tab labeled with the selected name.

- Enter the percentage data. The example shown below, taken from the sample file "lithology3.dat," illustrates how data is entered into the tab.

Pattern % column identifier, to match column name in the design.

Keywords whose percentages are listed below.

Top	Base	LIMESTONE	DOLOMITE	SHALE	SAND	ANHYDRITE
0	-18	0	100	0	0	0
-18	-25	0	80	20	0	0
-25	-35	0	70	30	0	0
-35	-40	0	60	40	0	0
-40	-55	0	0	100	0	0
-55	-65	10	0	0	90	0

Depth or elevation at top and base of each interval.

Relative percentage values for each declared keyword. The percentage values on each row must total 100 or less.

Name: The name displayed on the data tab is used to match the data to a particular Pattern Percent column in the log design. This name is declared when you first create the data page (above) and can be edited using the **Data / Edit Entity Name** command.

Top, Base: In these columns you must list the depth or elevation at the top and the base of the pattern percent interval being described on that row.

Shortcut: Right-click on any cell in the Percent tab and select **Fill Interval Column** to fill the columns with regular depth increments.

If your data are entered as depths (as opposed to elevations), they are typically entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Columns 3-22: These columns represent the rock types for which you will be declaring percentage representation. The rock type keywords are displayed as column headers.

The Column Names

To change the names of the headers, or to add or remove headers, right-click on any cell in the Percent window, and select the **Edit Percentage Headers** command.

The program will display the Pattern Percentage Editor window. In this window is listed the keywords that are to be displayed in the Percent data tab. The top-down order in the listing corresponds to the left-right order of the column headings. See Edit Percentage Headers, page 146.

The Data Listing

To enter the actual percentage data into the Percent data page cells, you can use the <Tab> key to advance from cell to cell, and from the end of one row to the beginning of the next.

The relative percentage values on each row must add up to a value less than or equal to 100.

Shortcut: If you already have this percentage data in a tabular format in another application, you can copy the data there and then paste it into the Percentage tab using the **Edit / Paste** command. Or, use the ASCII or DBF import tools (page 152).

Automatic: If there's already a Symbol column in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Symbol tab in the current data file. The program will know how to name the tab based on the log design information.

Manual: You can also use the **Data / New Data Item / Symbol** command to manually insert a Symbol tab.

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Symbol column in the log design to which this data page is to be linked. In this list the program will show the names of all of the Symbol columns in the current log design.



Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet a Symbol tab labeled with the selected name.

2. Enter the symbol data, as shown in the example below (from the demo file "enviro-geotech6.dat").

**Symbol Column identifier, to match
column name in Log Designer**

Depth	Symbol	Size
-10		0.25
-14		0.25

**Depth at which
symbol is to be
plotted**

**Symbol
(double-click)**

**Symbol size
(in inches)**

Name: The name displayed on the data tab is used to match the data to a particular Symbol column in the log design. This name is declared when you first create the data page (above) and can be edited using the **Data / Edit Entity Name** command.

Depth: In this column you must list the depth or elevation at which you want the symbol to be plotted. (The symbol's origin - usually its center - will be placed at the declared depth.)

If your data are entered as depths (as opposed to elevations), they are typically entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Symbol: Double-click on the **Symbol** cell to bring up the Symbol Selector window. Here you can pick from the available symbols in the current symbol file, and select the symbol color. See The Select Symbol Window (page 188) for more information.

Size: In this column, you must type in the size at which the symbol is to be plotted, expressed in

decimal inches. An entry of "0.25" would plot the symbol at a size of one-quarter inch (or cm.), regardless of the vertical scaling of the log.

You may use the <Tab> key to advance from cell to cell, and from the end of a row to the next row within the Symbol tab.

Text-Column Tab

Use: The Text-Column tab is used to enter text and the depth at which it is to be plotted in a Text column on the log. Such text could range from sample numbers to measurements of moisture content or consistency to extended textual listings or notes. These text entries will simply be plotted as-is, with no keyword searching or linking to a pattern column as is done with text listed in a Lithology tab.

Corresponding log design component: Text listed in this tab will be plotted on the log within the Text column of the same name.

Restrictions: Each Text-Column entry is limited to 2048 characters. You must list the entries in sequential order down the log.

Right-Click Options: When you right-click in any of the Text-Column tab's cells, you have the following options:

Cut, Copy, Paste Rows Columns Fill Depth Column Edit Entity Name Delete Data Page
Move

How to enter the text column data

1. To add a new Text Column tab to the current data file, you have two choices:

Automatic: If there's already a Text column in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Text tab in the current data file. The program will know how to name the tab based on the log design information.

Manual: You can also use the **Data / New Data Item / Text-Column** command to manually insert a Text-Column tab.

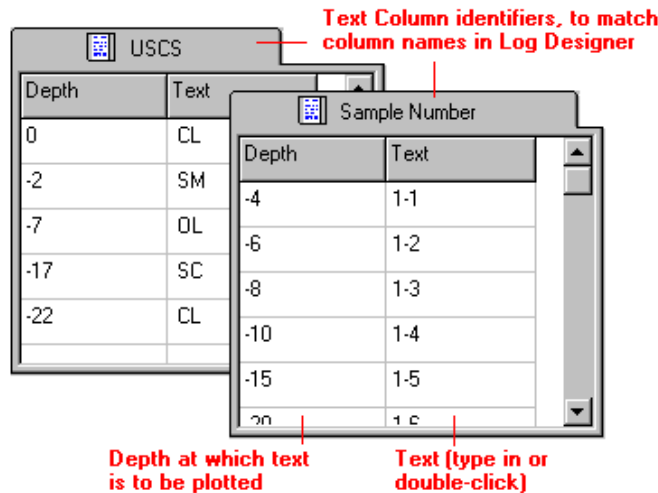
Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Text column in the log design to which this data page is to be linked. In this list the program will show the names of all of the Text columns in the current log design.

Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet a Text tab labeled with the selected name.

2. Enter the text information. This example illustrates how you enter data into the tab, excerpted from the sample file "enviro-geotech6.dat."



Name: The name displayed on the data tab is used to match the data to a particular Text Column in the log design. This name is declared when you first create the data page (above) and can be edited using the **Data / Edit Entity Name** command.

Depth: In this column you must list the depth or elevation at which you want the text to be plotted. Placement of Text-Column text is done similarly to descriptive text.

! The declared depth will represent the top of a "box" that the program creates for the text entry.

If your data are entered as depths (as opposed to elevations), they are typically entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Text: In this column, you enter the text to be plotted. The text can be short abbreviations (as in the above examples) or lengthy descriptions, up to 2048 characters. The program will wrap the text automatically within the Text Column. The program will honor "hard" carriage returns (noting them with "/" characters) and leading spaces.

Shortcut: Rather than typing in the text description, you can double-click on the text cell to bring up the Description Editor window.

You may use the <Tab> key to advance from cell to cell within the Text-Column tab.

Vertical-Text Tab

Use: The Vertical-Text tab is used to enter text and the depth intervals between which it is to be plotted in a Vertical Text column on the log. This is often done in logs to note stratigraphic groupings or geologic time divisions.

"Regular" (non-vertical) text is entered using the Text-Column tab, above.

Corresponding log design component: Text listed in this tab will be plotted on the log within the Vertical Text column of the same name.

Right-Click Options: When you right-click in any of the Vertical-Text tab's cells, you have the following options:

Cut, Copy, Paste Rows Columns Fill Depth Column Edit Entity Name Delete Data Page Move

How to enter the vertical text data

- To add a new Vertical Text tab to the current data file, you have two choices:

Automatic: If there's already a Vertical Text column in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Vertical Text tab in the current data file. The program will know how to name the tab based on the log design information.

Manual: You can also use the **Data / New Data Item / Vertical Text** command to manually insert a Vertical Text tab.

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Vertical Text column in the log design to which this data page is to be linked. In this list the program will show the names of all of the Vertical Text columns in the current log design.

Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet a Vertical Text tab labeled with the selected name.

- Enter the text information. This example illustrates how you enter data into the tab.

Age

Top	Base	Text (up to 255 characters)
-2000	-2020	TERTIARY

Group

Top	Base	Text (up to 255 character
-2000	-2011	SWEETWATER
-2011	-2020	DRURY

Name: The name displayed on the data tab is used to match the data to a particular Vertical Text column in the log design. This name is declared when you first create the data page (above) and can be edited using the **Data / Edit Entity Name** command.

Top, Base: In these columns you must list the depth or elevation at the top and the base of the interval in which you want the text to be plotted.

If your data are entered as depths (as opposed to elevations), they are typically entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Text: In this column, you enter the text to be plotted vertically within the indicated interval. The text can be short abbreviations (as in the above examples) or relatively lengthy, however if there is not enough room vertically to display the text, it will be truncated when the log is compiled. Items that affect the interval length in addition to the depth range are font size (established in the Log Designer), and vertical plotting scale.

You may use the <Tab> key to advance from cell to cell within the Vertical-Text tab.

Well-Column Tab

Use: The Well-Column tab is used to enter depth intervals and well material "keywords" for display as a Well Construction diagram on a log. In addition, the user declares the inner and outer diameter for the materials for correct representation of width. The construction "keywords" are associated with graphic patterns just like lithologic keywords, and are easily selected from the data tab. In addition you can specify an "offset" from well center, enabling you to display two separate borings in a single Well Construction diagram.

Corresponding log design component: Intervals and materials listed in this tab will be plotted on the log within the Well Column of the same name.

Restrictions: There is a limit of 60 characters, including spaces, for keywords.

Right-Click Options: When you right-click in any of the Well-Column tab's cells, you have the following options:

Cut, Copy, Paste Rows Columns Fill Interval Column Edit Entity Name Delete Data Page
Move

How to enter the well construction data

1. To add a new Well Column tab to the current data file, you have two choices:

Automatic: If there's already a Well Construction column in the current log design to which you'll be linking the data, you can use the **Data / Update Data Template from Log Design** tool to insert a new Well Column tab in the current data file. The program will know how to name the tab based on the log design information.

Manual: You can also use the **Data / New Data Item / Well-Column** command to manually insert a Well Column tab.

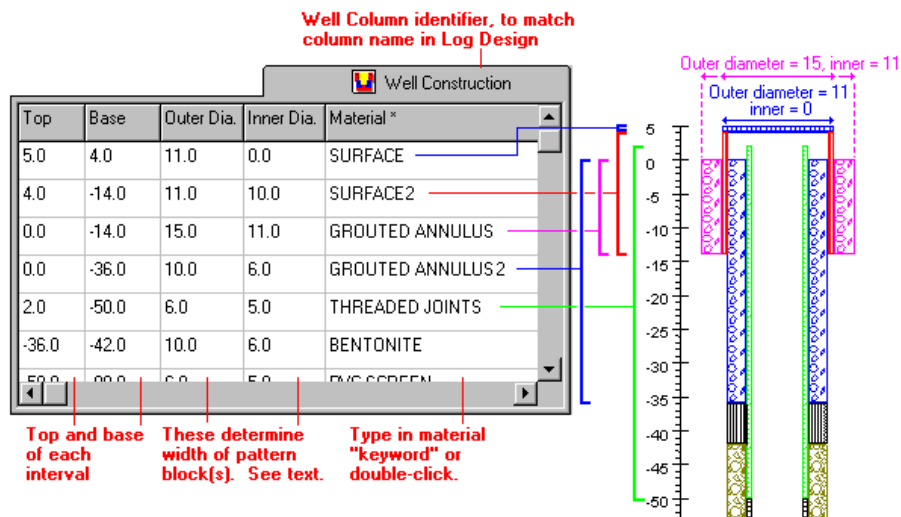
Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the Well Construction column in the log design to which this data page is to be linked. In this list the program will show the names of all of the Well Construction columns in the current log design.

Or, just type in a name for the tab.

Click **OK**.

The program will add to the data sheet a Vertical Text tab labeled with the selected name.

- Enter the depth, diameter, keyword, and offset information. This example illustrates how you enter data into the tab.



Name: The name displayed on the data tab is used to match the data to a particular Well Column in the log design. This name is declared when you first create the data page (above) and can be edited using the **Data / Edit Entity Name** command.

Top, Base: In these columns you must list the depth or elevation at the top and base of the interval to be filled with pattern; they determine the vertical extent of the pattern blocks in the Well Column. If your data are entered as depths (as opposed to elevations), they are typically entered as negative values so that they decrease in value down the well, but LogPlot does accept positive depths. (See Log Settings, page 191, for declaring positive depths.)

Outer Diam.: The value entered in this column determines the outer width of the pattern blocks in the Well Column. The Well Column is set up in the Log Designer to represent a particular well diameter, in real world coordinates such as inches or centimeters. The Outer Diameter setting established here determines how much of the width of the entire Well Column will be filled with that pattern block.

Example: Let's say you created a Well Column in Log Designer and established its diameter at 15 inches. If you then declared a pattern interval in the Well Column data tab to have an **Outer Diameter** of "15," the pattern block would be plotted all the way to the edge of the column. You may refer to the widest block in the above diagram.

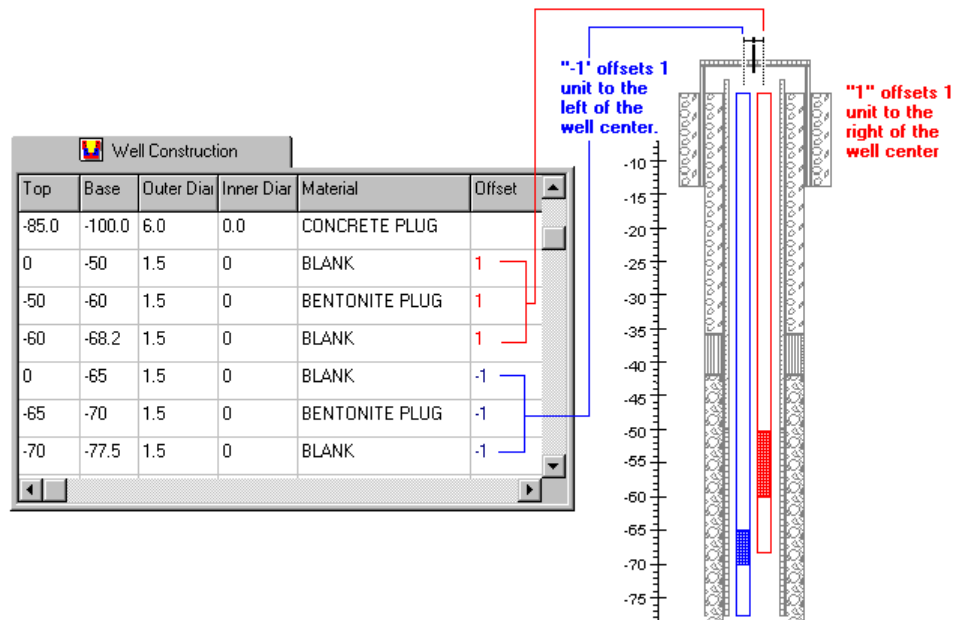
Inner Diam.: The value entered in this column determines how far to the center of the Well Column that the interval will be filled with the pattern block. In the widest interval shown above, the block is plotted to an inside diameter of "11."

Material: In this column you type in the "keyword" for the well construction interval. These construction keywords are listed in the same keyword file as the lithology keywords and are

associated with particular patterns. Keywords may be comprised of one or more words, and are limited to 60 characters including spaces.

Shortcut: Rather than typing in the keyword name, just double-click on the **Material** cell to bring up the Lithology Selector window. Here you can pick from the available keywords in the current keyword file and view the pattern that is associated with them. See the Lithology Selector Window, page 142, for information.

Offset: (Optional). This setting is used to declare the offset from the center of the well that this material block is to be plotted, enabling multiple borings within a single construction diagram. Negative values offset the block to the left of the center, positive values to the right. In the example below, the items noted in red are plotted to the right, and the items noted in blue to the left.



If no offset is declared, the program assumes the item to be centered in the well.

You may use the <Tab> key to advance from cell to cell within the Well-Column tab.

Depth versus Elevation

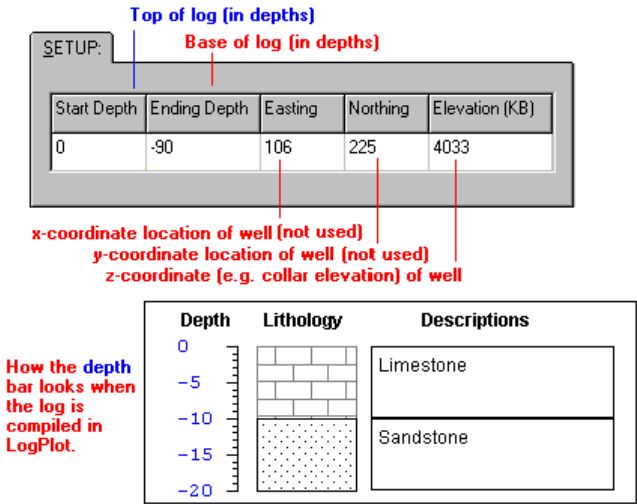
Your log data that you enter in the LogPlot program will typically be entered as depths down the drill hole. The depths can be entered as either positive values (depth at top of log = 0, depth at base of log = 500) or as negative values (depth at top of log = 0, depth at base of log = - 500).

You may also enter the data as elevations. Your log might start at an elevation of 2500 feet elevation and extend down 500 feet to an elevation of 2000 feet.

LogPlot will accept both types of data, but you need to follow these guidelines to get the correct values to be plotted on the scale bar.

Depth Data, Depth Scale

If your LogPlot data are in depths and you select a depth Scale Bar, the uppermost depth label will be equal to the top of the log, listed in the LogPlot data file on the Setup tab. An excerpt from a data file is shown below, with the top of the log listed at a depth of 0.

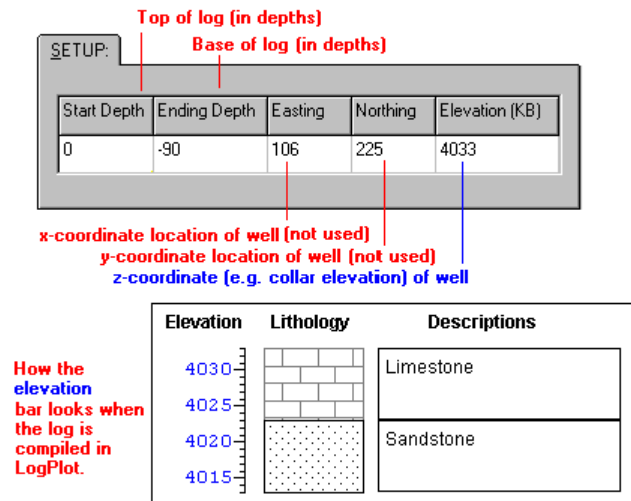


You may also plot a subset of the entire data set. In this example, you could request within LogPlot a plot of only the -20 to -80 portion of the log, and the depth bar would be labeled accordingly.

See also the **Absolute Value** check-box in the Scale Bar Setup if you prefer the depth labels be stripped of their "-" sign.

Depth Data, Elevation Scale

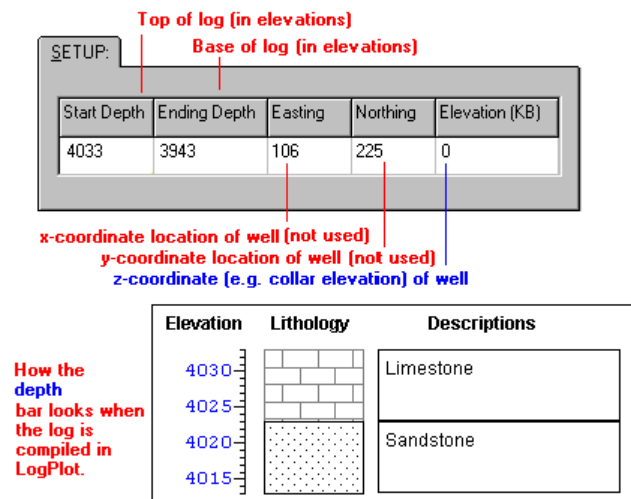
If your LogPlot data are in *depths* and you select an *elevation* Scale bar, the uppermost tick mark will be equal to the z-coordinate of the well, also listed in the data file in the Setup tab. An excerpt is shown below, with the top of the well listed at an elevation of 4033.



If you are plotting just a subset of the data, the elevation labels will be adjusted accordingly.

Elevation Data, Elevation Scale

If your LogPlot data are in elevations, this sets up a different scenario. To get them to plot as elevations, you should use a depth scale bar, and then be sure that the z-coordinate (KB Elevation) for the well is set to "0" in the data file's Setup tab.



Automatic Data Tools

LogPlot contains these very handy tools for automatic linking of your data and design files, and trouble-shooting linking problems:

Create New Data Template is available in the Log Designer window's **Data** menu. Use this tool to create a brand-new data file, with blank data tabs that match the items in the current log design.

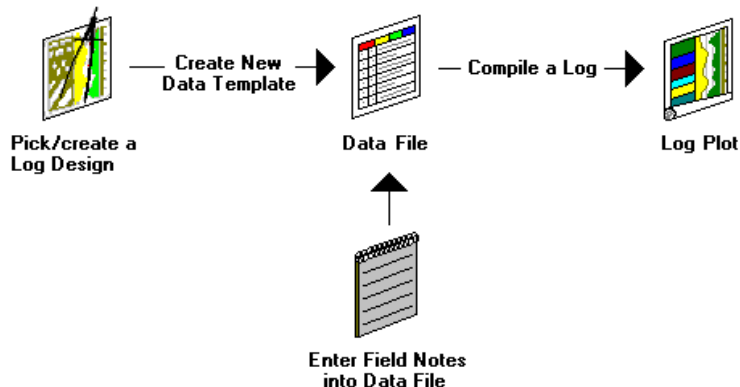
Update Data Template from Log Design is available in the Data Editor's **Data** menu. It is used to update an existing data file for the items contained in the current log design.

Check Data Against Log Design is used to compare the tabs listed in the current data file with the entities in the current log design and display a quick summary.

Creating a New Data File for a Log Design

The Log Designer's **Data / Create New Data Template** command is used to open a new Data Editor window and populate it with the data tabs that match the items in the current log design.

Example: Your company drills a new borehole and you want to display the data in the log design typically used for all such projects. You use LogPlot to open the log design, and you use **Create New Data Template** to create a new data file with tabs for this design. You then enter the field data, and compile the data into a plottable log. Here's a sample workflow.



How to create a new data file for the current log design

1. If necessary, click on the Log Designer tab and open the log design you wish to use.
2. Choose the **Data / Create New Data Template** command from the Log Designer's **Data** menu.

The program will populate this new data file with one or more tabs that correspond in type and name to the entities in the current log design.

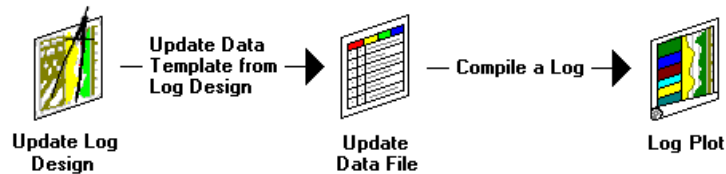
3. Enter the data into the data tabs. (See Data Tab Summary, page 99, for details.)

4. Save the data file.

Updating Your Data File for a Log Design

The Data Editor's **Data / Update Data Template from Log Design** option is used to update an existing data file so that it will contain all of the necessary data tabs for the current log design.

Example: Your company likes the logs you have already been generating with the program, and they want you to add 2 new items to the log's design. You add them to the design, use **Update Data Template from Log Design** to update the existing data file, complete the new data items, and compile the data into a log design. Here's a sample workflow:



How to update an existing data file for the current log design

1. If necessary, click on the Log Designer tab and open the log design you wish to use.
2. Click on an existing Data Editor tab or (if none are showing) create a new Data Editor window.
3. Open the existing data file you wish to update.
4. Choose the **Data / Update Data Template from Log Design** command from the Data Editor's menu.

The program will check the contents of the current data file against the entities in the current log design. For any design entities which have no corresponding data tabs, it will create these tabs in the Data Editor window.

5. Enter the data into the new data tabs. (See Data Tab Summary, page 99, for details.)
6. Save the data file.

Check Data Against Log Design

LogPlot's Data Editor uses data "tabs" to organize the different kinds of information that can be plotted on the graphic log. The program matches these tabs, their types and their names, to items in your log's design to know where to plot what.

If you have a log design for which you wish to enter new data, you can easily create a blank template of data tabs for that design using the Update Data Template from Log Design command, in the Editor's **Data** menu. You then simply need to type or copy-and-paste the actual data into the tabs.

You can also use that same command to update an existing data file with new tabs for changes made to the log design.

But, what if you still get blank spaces on your log? Use the Data Editor's **Data / Check Data Against Log Design** command.

The program will scan the current log design and data files, and compare the entities in both. It will open a text window and display a summary of its findings, similar to the example below. Note that the items are listed by their names (displayed on the data tabs, and assigned to items in the design).

```
=====
Entities in Data but not in LogDesign
=====
Drilling Rate

=====
Entities in LogDesign but not in Data
=====
Cross-Plot Curve
```

Other Data Tools

Topics:

The Lithology Selector Window (below).

The Description Editor (page 142).

Fill Depth Column (page 143).

Fill Interval Column (page 144).

Edit Entity Name (page 145).

Edit Percentage Headers (page 146).

Edit Multi-Column Headers (page 147).

Deleting Edit-Text Entries (page 148).

Deleting Edit-Notes Entries (page 149).

Inserting, Appending, Deleting Rows (page 149).

Manipulating Columns of Values (page 150).

Moving Data Tabs (page 150).

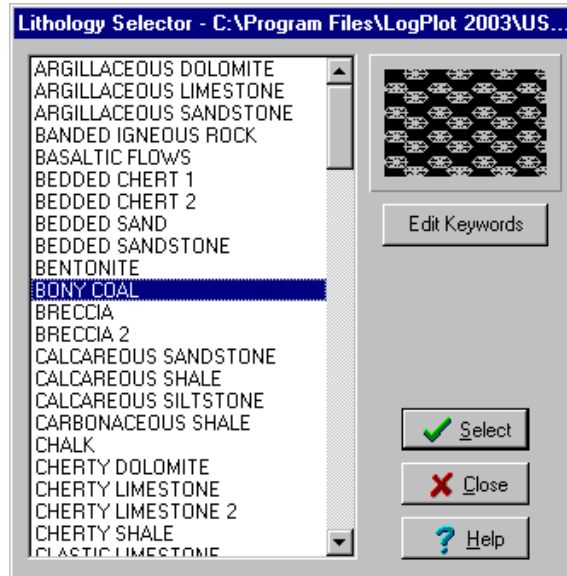
Wrapped versus Scrolling Tabs (page 151).

The Lithology Selector Window

Lithologic "keywords" are used in LogPlot to make a match between rock types and the graphic patterns used in logs to represent them. Keywords are entered in both Lithology and Percent data tabs to represent rock types, and in the Well-Column tab to represent construction materials.


When you double-click in the **Keyword** column in the Lithology tab or the **Materials** column in the Well-Column tab or click on the **Add Keywords** button in the Pattern Percentage Editor window, the program will display the Lithology Selector window.

The Lithology Selector window displays the list of keywords in the current keyword file.



The Lithology Selector window displays the list of keywords in the current keyword file.

How to...

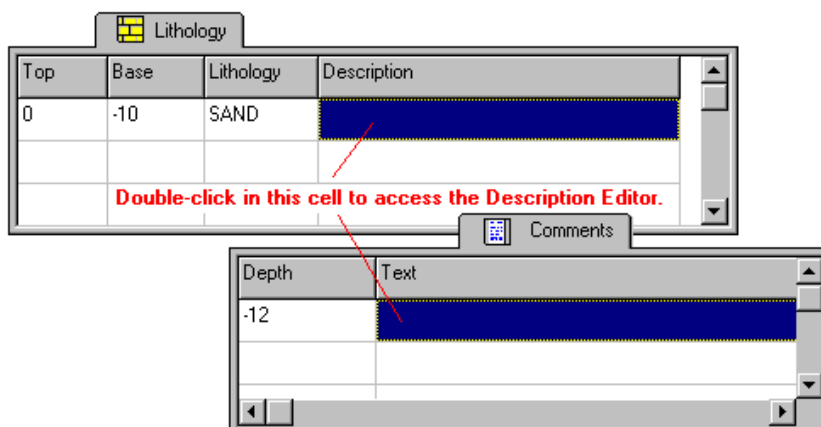
 Select a keyword. See **Help / Contents**, click the Index tab, type in Lithology Selector Window.

 Open a different keyword table. See Help as above.

The Description Editor

The Description Editor window is accessible from two LogPlot data tabs:

From the Lithology tab, the Description Editor is accessed by double-clicking in the Description column. It is used to type in the extended description, if any, that will be plotted in the Lithology Description column in the log's design.



From the Text-Column tab, the Description Editor is brought up when you double-click in the Text column. It is used to type in the text to be plotted in the Text Column.

To enter the text, you may type in from the keyboard, or use the following buttons:



Cut – Use this button to remove any highlighted text from the Editor window and place it in the computer's Clipboard for later pasting.



Copy – Use this button to place a copy of any highlighted text in the Editor window, and place it in the computer's Clipboard for later pasting.



Paste – Use this button to insert at the current cursor location in the Editor window the contents of the computer's Clipboard. Only text may be pasted into this window.

Fill Depth Column

The **Fill Depth Column** command is available as a right-click option from within many of the LogPlot data tabs. It is used to enter a single column of depth values at regular increments automatically into a tab's **Depth** column, starting at the current cursor position in the tab.

To add depth values to a tab, follow these steps:

1. Click in the tab to be edited, to make it active.
2. Click in the row in which the depth listing is to start.

- Then, right-click in any of the tab's cells.
- Select the **Fill Depth Column** command from the pop-up menu.
- Enter the requested information.

Starting Value: Enter at this prompt the depth or elevation to be listed in the row at which the cursor is currently located. This value may represent English or metric units.

Ending Value: Enter at this prompt the lower-most depth or elevation value to be listed on the data tab.

Remember that the depths or elevations typically decrease in value down the hole (and down the tab). So, if you are entering depths they are usually entered as negative values, but it's not required. (See Log Settings if you are entering positive depths.) Any depth data already listed in the cells will be overwritten.

Depth Increments: Enter here the increments at which the depth or elevation values are to be listed in the tab.

Decimals: Type in, or select with the up- or down-arrows, the number of decimal places to be represented in the depths or elevations. Be sure the decimal places are adequate to represent the requested increments.

Starting Value :	Ending Value :	Interval :	Decimals :	Depth
0.0	-30.0	5.0	2	0.00
				-5.00
				-10.00
				-15.00
				-20.00
				-25.00
				-30.00

Fill Interval Column

The **Fill Interval Column** command is available as a right-click option from within many of the LogPlot data tabs. It is used to enter beginning and ending depth values at regular increments into two columns, starting at the current cursor position in the tab.

To add depth intervals to a tab, follow these steps:

- Click in the tab to be edited, to make it active.
- Click in the row at which the depth listing is to start.
- Right-click in any of the tab's cells.

4. Select the **Fill Interval Column** command from the pop-up menu.
5. Enter the requested information.

Starting Value: Enter at this prompt the depth or elevation to be listed in the row in which the cursor is currently located. This value may represent English or metric units.

Ending Value: Enter at this prompt the lower-most depth or elevation value to be listed on the data tab.

Remember that the depths or elevations typically decrease in value down the hole (and down the tab). So, if you are entering depths they are usually entered as negative values, but it's not required. (See Log Settings if you are entering positive depths.) Any existing depth data will be overwritten.

Depth Increments: Enter here the increments at which the depth or elevation values are to be listed in the tab. This will determine the **Top** and **Base** entries for each depth interval.

Decimals: Type in, or select with the up- or down-arrows, the number of decimal places to be represented in the depths or elevations. Be sure the decimal places are adequate to represent the requested increments.

Starting Value :	0.0
Ending Value :	-30.0
Interval :	5.0
Decimals :	1

Top	Base
0.0	-5.0
-5.0	-10.0
-10.0	-15.0
-15.0	-20.0
-20.0	-25.0
-25.0	-30.0

Edit Entity Name

The **Edit Entity Name** command is available as a right-click option from within many of the LogPlot data tabs. This command can also be selected from the LogPlot **Data** menu.

It is used to change the name of the data item, displayed on the tab or as a row heading. The entity name is used to match the data item to an item in the log's design. For example, the data in a Curve tab with the name "drilling rate" will be plotted in a Curve column also named "drilling rate" in the log's design. Or, the Edit-Text row labeled "date" will be matched to the Edit-Text field named "date" in the header of the log.

To change the name displayed on a data tab, follow these steps:

1. Click on the tab to be modified, to make it active.
2. Right-click in any of the tab's cells.

3. Select the **Edit Entity Name** command from the pop-up menu.
4. Enter the requested information.

Entity Name: In the displayed window, click on the down-arrow to the right, and select the name of the item in the current log design to which this data page is to correspond. In this list the program will show the names of all of the entities in the current log design that match the tab type.

If you don't have a design selected, or if your design's correct column names aren't displayed, click the **Cancel** button. Access the **Options** menu from the main program toolbar, select the **Log Settings** option, and select the log design to be used. Then try changing the entity name again.

The **Entity Name** prompt will also allow you to type in a name. This must match, character-for-character, the name that is assigned to the corresponding item in the log design. The match is *not* case-sensitive.

5. Click **OK** to continue.

The program will display the new name at the top of the data tab. For the Edit-Text and Edit-Notes tabs, the entity names are listed as the first entry of each row.

Edit Percentage Headers

The **Edit Percentage Headers** command is available as a right-click option from within the Percent tab. It is used to change the name and/or number of lithology keywords to be represented in the tab. (A Percent tab is used to enter depth intervals and relative percentages of up to 20 rock types, to be displayed as graphic patterns in a Percent Column on a log.)

To add/change the lithology keywords listed in the Percent tab, follow these steps:

1. Click on the Percent data tab to be modified, to make it active.
2. Right-click in any cell within the tab.
3. Select the **Edit Percentage Headers** command from the pop-up menu.

The program will display the Pattern Percentage Editor window. In this window is listed the keywords currently declared for the Percent tab.

4. Here, you may add, delete or reposition the keywords.

To add a keyword to the listing displayed in the Pattern Percentage Editor window, click on the **Add Keyword** button. You can then select one or more new keyword(s) from the Lithology Selector window. You may declare up to 20 keywords in Pattern Percentage Editor window. See the discussion of the Lithology Selector window earlier in this section.

To delete a keyword that is currently listed in the Pattern Percentage Editor window, click on the keyword and press the **Delete** button. The keyword will be removed from the display.

To move a keyword up or down in the listing, click on the keyword, drag it to its new location, and release the mouse button.

5. When you are done declaring all of the keywords to be displayed, in order, in the Percent tab, click on the **OK** button at the bottom of the Pattern Percentage Editor window.

You will be returned to the Percent tab, with the requested keywords displayed as column headers.

Edit Multi-Column Headers

The **Edit Multi-Column Headers** command is available as a right-click option from within the Multi-Curve and Multi-Histogram tabs. This command is used to change the entity name(s) to which the curve and histogram data listings will be matched. The names are displayed as column headers in the Multi-Curve and Multi-Histogram tabs.

To modify any of the column headers of a Multi-Curve or –Histogram tab, follow these steps:

1. Click in the tab to be modified, to make it active.
2. Right-click anywhere within the tab.
3. Select the **Edit Multi-Column Headers** option.

The program will display a window listing the current names for the curve or histogram columns in the tab.

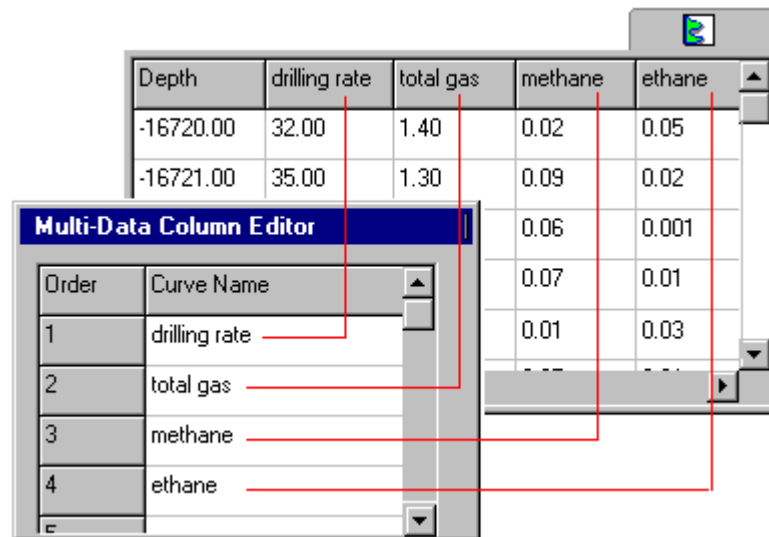
4. To change a column name, click on the down-arrow to the right, and select the name of the item to which this data listing corresponds. In this list the program will show the names of all of the Curve, Histogram, and Cross-Plot Curves in the current log design.

If you don't have a design selected, or if your design's correct column names aren't displayed, click the **Cancel** button. Access the **Options** menu from the main program toolbar, select the **Log Settings** option, and select the log design to be used. Then try changing the column header again.

The Edit Multi-Column Headers prompt will also allow you to type in a name. This must match, character-for-character, the name that is assigned to the corresponding item in the log design. The match is *not* case-sensitive.

You may list up to 40 curve or histogram columns in the Multi-Curve and Multi-Histogram columns, respectively. Each listed column must have a unique name in order to match the data to a curve or histogram column in the log's design. Any extra data columns in the tab, without matching items in the log's design, will simply be ignored when the data is compiled.

The example below shows a Multi-Curve tab, and how its curve names appear when displayed in the Multi-Data Column Editor window.



Deleting Edit-Text Entries

The **Delete Edit Text** command is available as a right-click option from within an Edit-Text tab. It is used to remove the currently-selected Edit Text entity from the tab.

! It's advisable to use this option rather than the simple **Rows / Delete** command because the Edit Text row contains an entity name.

1. Click in the Edit-Text tab in the data file, containing the item to be removed.
2. Click in the row of the item to be removed.
3. Right-click in that cell.
4. Select the **Delete Edit-Text** command from the displayed menu. (You can also choose the **Delete Edit-Text** command from the **Data** menu.)

! The program will NOT warn you before deleting. Be careful.

! If you inadvertently deleted the item, you can use the **Data / Update Data Template from Log Design** command to re-insert the item automatically.

Deleting Notes Entries

The **Delete Note** command is available as a right-click option from within an Notes tab. It is used to remove the currently-selected note entity from the tab.

! It's advisable to use this option rather than the simple **Rows / Delete** command because the Note row contains an entity name.

1. Click in the N-TEXT tab in the data file, containing the item to be removed.
2. Click in the row of the note you wish to delete.
3. Right-click in that cell.
4. Select the **Delete Note** command from the displayed menu. (You can also choose the **Delete Note** command from the **Data** menu.)

! The program will NOT warn you before deleting. Be careful.


! If you inadvertently deleted the item, you can use the **Data / Update Data Template from Log Design** command to re-insert the item automatically.

Inserting, Appending, Deleting Rows


When you right-click on a LogPlot data tab, a pop-up menu will appear.

How to...

 Append rows to the active data tab. See **Help / Contents**, click on the Index tab, type in Rows.

 Insert rows within the active data tab. See Help as above.

 Delete rows from a data tab. See Help as above.

 Go to a particular row in the data tab. See Help as above.

See also:

Deleting Data Items (page 95) for information about deleting *entire data tabs*.

Manipulating Columns of Values

When you right-click on a LogPlot data tab, a pop-up menu will appear. The following **Columns** tools are available:

Columns / Math is used to perform arithmetic operations with the values in one of the data columns in the active data tab. LogPlot offers operations either with a constant or with the data listed in another column in the tab. See **Help / Contents**, click on the Index tab, type in Columns.

Columns / Resample is available for data tabs containing point-sampled (curve) quantitative data. It is used to transform data which was sampled at randomly or densely spaced depth intervals, to evenly spaced depth intervals for plotting. This is a handy way to delete extraneous data that can be the result of stream digitizing or overly-sensitive sampling equipment. See Help as above.

! This tool will resample all of the columns in the active tab.

Columns / Smooth is also available for data tabs containing quantitative data. This command is used to "smooth" out data values by averaging them with a user-specified number of neighboring data values. See Help as above.

Columns / Filter is also available for data tabs containing quantitative data, and is used to remove low and/or high out data values, re-assigning them a threshold minimum or maximum. This can be helpful if you are importing data sets with very high or low "null" values, or if you suspect recording error.

Moving Data Tabs

LogPlot displays its data tabs in the order in which the data blocks are listed internally in the DAT file, starting with the SETUP tab. Typically, the tabs are listed in the order in which they are added to the data file. If you created the DAT file automatically from the log design, the tabs will be listed in the same order as the entities are listed in the log design.

You may, however, prefer that the tabs be listed in a specific order to comply with field collection techniques or to fit your personal preferences. Use the **Move** options available when you right-click in the body of the tab.

! The **Move** options are not available for the Setup tab; it is always listed first.

To move a data tab to the left or right:

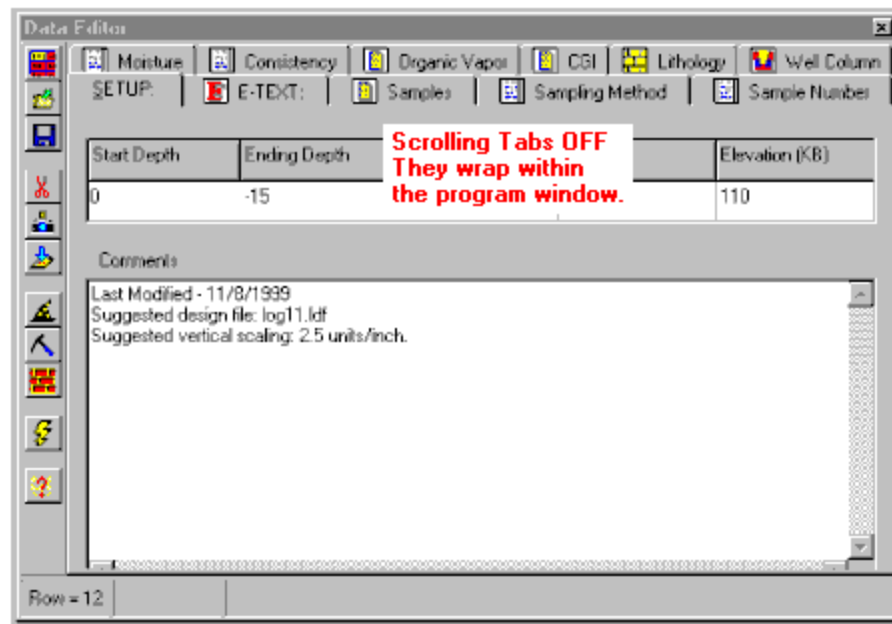
1. Click in data tab you wish to move.
2. Right-click in any of the cells within the tab.
3. Select the **Move Left** command from the displayed menu to move the tab one position to the left. Select the **Move Right** option to move the tab one space to the right.

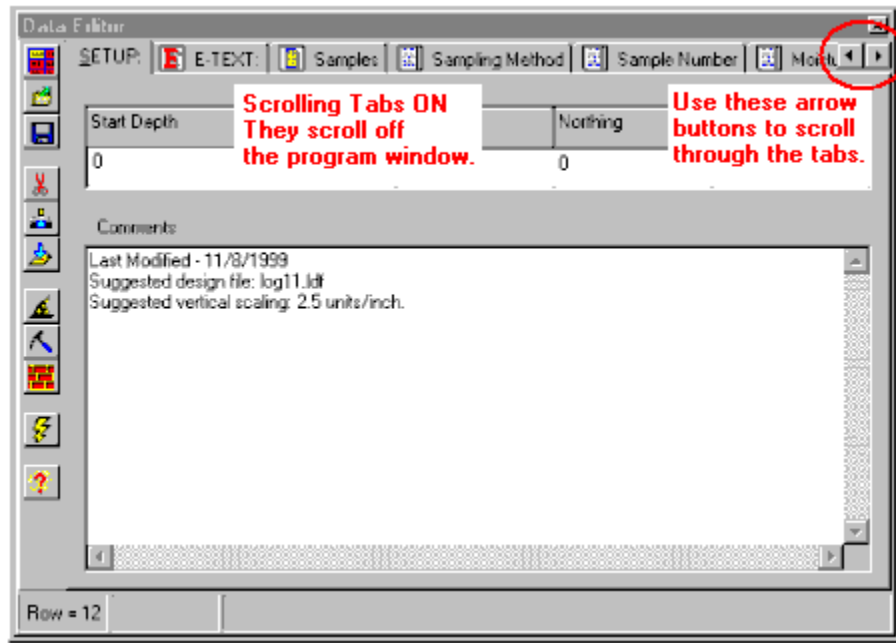
The tab will be repositioned as requested. Be sure to save the file to keep the changes.

Wrapped versus Scrolling Tabs

By default, LogPlot displays all of the data tabs in a wrapped manner, so that multiple rows of tabs can be visible.

You can toggle this to a scrolling display of the tabs using the **Options / Scrolling Tabs** command.





To turn on/off scrolling tabs:

1. Click in the Data Editor window whose settings you wish to change.
2. Click on the **Options** menu and choose **Scrolling Tabs**.

This is a toggle item: If it's displayed with a check-mark, then scrolling is activated. If it is not displayed with a check-mark, then the tabs will wrap. Changing the status from checked to not, or from not-checked to checked is done simply by selecting the item from the menu.

Importing Data

Importing Data (Text, DBF, LAS)

If you have log data stored in another software program, LogPlot offers the following data import tools:

Importing Text Data (below).

Importing DBF Data (page 154).

Importing LAS Data (page 156).

Importing Text Data

The Data Editor's ASCII Text import tool reads text files into a tab of your choice. For example, a RockWorks99 "LIT" file listing could be imported into a LogPlot Lithology tab. Or, a file containing rows and columns of quantitative values could be imported into a Multi-Curve tab.

To import the text data:

1. Click on the tab into which you wish to import the text data. (Or, insert a new data tab if necessary.)
2. Select the Data Editor's **File** menu, and choose the **Import** command.
3. From the pop-up menu, select the **ASCII Text** command.
4. Enter the requested information:

File to import: Click on the open-file button to the right of the prompt to select the name of the ASCII text file whose contents are to be imported.

The program will display the first 10 lines of this file in the scrolling window. You can verify that this is the text data you wish to import.

Skip lines: Enter here the number of initial lines that are to be omitted from the import; choose 0 if none is to be ignored.

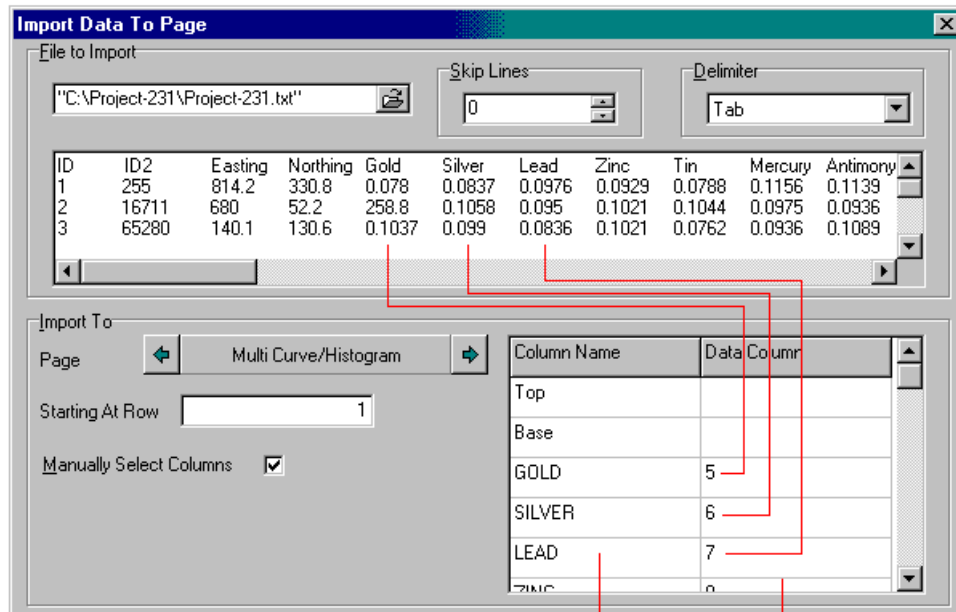
Delimiter: Specify here the column delimiter used in the imported file.

Import to: This determines the data tab into which the data is to be imported. The default will be the current (front-most) tab, but you may click on the arrows to advance through the list of tabs. The selected tab will be brought to the foreground of the Editor. The tabs will be listed by their names, except for Multi-Curve and Multi-Histogram tabs (which have multiple names). If necessary you can move the import window to the side as you scroll through the tab names to see which tab is on top.

Starting at Row: Enter the row number in the specified data tab at which the imported data listing should start. Note that the imported data will always start in the first column, though you can manually select the import column order.

Manually Select Columns: Insert a check here if you wish to specify a particular tab column for each column in the text file. (Leave this setting cleared if the text file's columns of data can be imported as-is, same column order, and same number of columns.)

If manual selection is activated, you'll need to match up the number of the data column in the text file with the column names in the current data tab.



These data tab columns will be assigned these text file columns.

! LogPlot data tabs require that the first one or two columns list point depths or top-bottom depth intervals. If the imported text file isn't listed with depths, you can leave the depth column(s) blank (as in the example above), and then enter the depths manually or automatically using the Fill Depth Column or Fill Interval Column tools.

! In the above example, the **Skip Lines** setting is left at "0" at first, in order to see this particular file's header lines for assigning columns. Then, prior to clicking **OK**, the **Skip Lines** setting is changed to "1" so that the header listing is not imported.

- Click **OK** to proceed with the import.

The program will read the data in the selected text file, skipping the indicated number of header lines, and will list the remaining data in the selected tab.

Importing DBF Data

The Data Editor's DBF import tool reads files into a tab of your choice. You may control the DBF fields are assigned to each tab column.

To import the DBF data:

- Click on the tab into which you wish to import the DBF data. (Or, insert a new data tab if necessary.)

2. Select the Data Editor's **File** menu, and choose the **Import** command.
3. From the pop-up menu, select the **DBF** command.
4. Enter the requested information into this first import screen:

DBF Database Name: Click on the open-file button to the right of the prompt to select the name of the DBF file whose contents are to be imported. This file must have a ".DBF" extension.

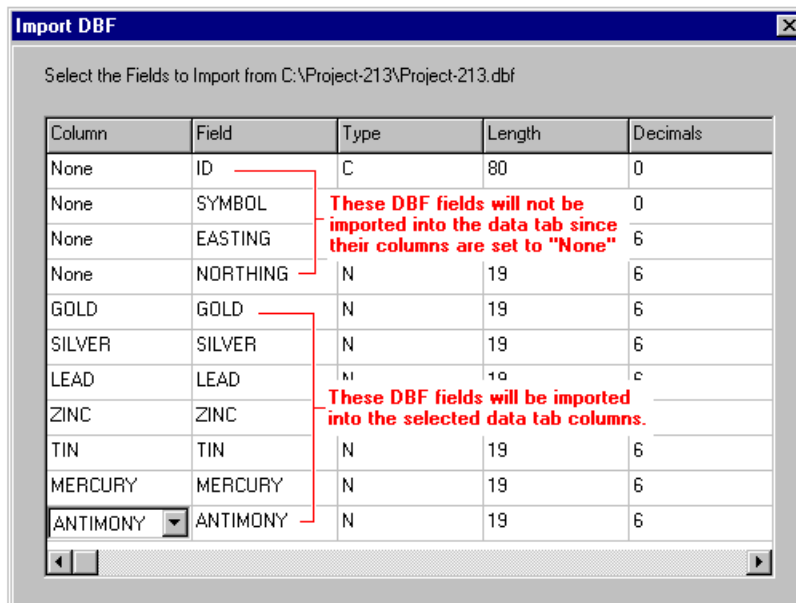
Import to: This determines the data tab into which the data is to be imported. The default will be the current (front-most) tab, but you may click on the arrows to advance through the list of tabs. The selected tab will be brought to the foreground of the Editor. The tabs will be listed by their names, except for Multi-Curve and Multi-Histogram tabs (which have multiple names). If necessary you can move the import window to the side as you scroll through the tab names to see which tab is on top.

Starting at Row: Enter the row number in the specified data tab at which the imported data listing should start. Note that the imported data will always start in the first column, though you can manually select the import column order.

4. Click **Next** to advance to the next screen, where you can assign specific DBF fields to specific columns in the selected data tab.

The first column of items, labeled **Columns**, corresponds to the columns in the active data tab. The second column of values, labeled **Fields**, corresponds to the fields in the DBF file. Also listed to the right will be each DBF field's type (C for character, N for numeric), length, and number of decimal places.

5. Starting with the first DBF field in the first row, click on the first cell to select from the pop-up list the data tab column in which this field's data is to be listed. If you wish to skip the first DBF field, set the Column to **None**. (You may need to scroll up in the pop-up list to locate "None".)
6. Continue with the second DBF field: Click in the first cell of the second row to select the data column in which this field's data is to be listed. Again, if you don't want this information imported into the tab, select None.
7. Continue in this manner for all of the DBF fields.



8. Click **Finish** to proceed with the import.

The program will extract the selected fields in the DBF file and list them in the requested columns in the data tab.

! LogPlot data tabs require that the first one or two columns list point depths or top-bottom depth intervals. If the imported DBF file isn't listed with depths, you can leave the depth column(s) blank, and then enter the depths manually or automatically using the Fill Depth Column or Fill Interval Column tools.

Importing LAS Data

This tool reads LAS (Log ASCII Standard) files, version 1.2 - 2 for import into a Multi-Curve data tab. You can select the curves in the LAS file to be imported, and you can request that the header information be imported into Edit-Text fields using the standard Mnemonic names as the entity names. This tool now also offers automatic creation of a very basic log design for the LAS file.

This process requires several steps which are listed below.

See also: Workflow: Import LAS Data, Create a Design (page 14).

Select the LAS file to import

1. Create a new Data Editor window.
2. Select the **Import** command from the Data Editor's **File** menu.
3. From the pop-up menu, select the **LAS** option.

The first import window is used to specify the name of the file to be imported:

4. **LAS Filename:** Click on the open-button  on the right side of this prompt to locate the LAS file to be imported, and click **OK** in the file open window to select it.

The program will scan the LAS file, and will list the header information in the reference window in the import dialog box.

5. Note a couple of things here:

Double-check the file name, well name, and other header information to be sure this is the well data you wish to import.

If you want to import any of these header fields (which you'll specify in a later screen), take note of the order in which the labels and data are entered in. (The LAS "standard" is anything but...)

Examples:

Expected: MIL LAC OIL AND GAS:Company Name

"Reversed" Company Name: MIL LAC OIL AND GAS

6. Click on the **Next** button.

Select the curves to import

On the next screen is listed all of the curves in the LAS file, referenced with the name, the curve units, the API number, and description.

1. First, check whether LogPlot has encountered a "null" value in the data file. This will be displayed in the lower-right corner of the screen. The null value is used in the LAS file to note no-data entries. If the null value is numeric (such as "-999.25") then you'll want to exclude them from the data summary.

Insert a check in the Ignore check-box to be sure the null value is not included in the next step.

2. Click the **Scan for Min/Max Values** to view a summary of the elog ranges (excluding any null value).

The program will display these values in the "Min" and "Max" columns in the window. This information can be very handy in knowing how to scale the curve column in the log. It is also required if you want to build an automatic log design in the 4th screen of the import wizard.

3. If you would like a text listing of the curve names along with the minimum and maximum data values and the measurement units, click the **Report** button. This text listing can be saved, copied,

or printed from the text window. Here's an example:

Name	Units	Min	Max
-----	-----	-----	-----
DEPT	F	519.5	2003
BS	IN	12.25	12.25
CALI	IN	11.938	15.812
SGR	GAPI	24.547	107.093
CGR	GAPI	25.953	93.103
SP	MV	37.409	115.125
LLD	OHMM	5.235	40.565
LLG	OHMM	4.951	38.453
LLS	OHMM	4.128	25.52
MSFL	OHMM	0.491	22.328

4. Select the curves you wish to import by inserting a check-mark next to their names. The check-marks are "toggle" marks – clicking in a checked box removes the check-mark, and clicking in an un-checked box inserts a mark. You may select up to 40 curves. Use the **All** or **None** buttons to insert/remove automatically all of the check-marks.
5. Finally, you may edit the curve names if necessary, either to assign them more intuitive names or to match curve names in an existing log design. Simply highlight the curve name's text and type in a new name.

! This is pretty important. If you will using the LAS data in an existing log design, then you should update the curve names to match the names of the curve columns in the log design.

6. Click on the **Next** button.

Set up the import parameters

On the third screen of the import window, you can establish some header and filtering information.

! At any time you can click the **Back** button in this window if you need to back-track to the first screen (to review header summary information) or to the second screen (to see curve summary and null value information).

1. **Update Setup:** Insert a check here if you want the depth at log top and depth at log base in the Setup tab of the current LogPlot DAT file to be updated with the Start and Stop depth listed in the header of the LAS file.
2. **Include as Edit-Text.**

Well Info: Insert a check here if you want the well information (company name, well name, field name, etc.) to be extracted from the LAS header and be listed as Edit-Text entries for inclusion in your log's header and/or footer. This information is typically included in the LAS file's "Well Information Block." Use the **Reverse Fields** check-box if your LAS file has these fields in reverse order. Compare the following examples from a LAS header provided by different companies. LogPlot expects the first sample. If your file is formatted as in the second example, you should

insert a check in the **Reverse Fields** option.

JOE'S OIL AND GAS:Company Name

LogPlot expects this format

Company Name: JOE'S OIL AND GAS
file has this format.

Reverse Fields should be checked if your

Parameters: Insert a check here if you want the well parameters (elevation, temperatures, etc.) found in the "Parameter Information Block" of the header to be imported as Edit-Text entries for inclusion in the header/footer.

3. **Curve Data**

Filter Depth: Insert a check here if you wish to import a subset of the entire depth range represented in the LAS file. If activated you can type in the top and bottom depth to be imported. This filter will apply to all of the curves.

Convert Depth Units: Insert a check in the **Convert** box if you want the depth units to be translated from Feet to Meters, Meters to Feet, or converted using a customized conversion factor. Click in the appropriate radio button, and, if **Custom**, type in the value by which the LAS depth units are to be multiplied.

Convert Null Values: Insert a check here if any null values in the LAS file should be replaced by a specified number, character, etc. The null values (such as "-999.25") can be replaced by a numeric value (such as 0), by a non-numeric value (such as ND or NO DATA) or by a blank (just leave the prompt box blank). When LogPlot plots curves, numeric null-replacements will be plotted at their true value. Non-numeric replacements and blanks will be skipped.

Decimal Places: Type in the number of decimal places to be listed for the curve data values.

4. Click **Next**.

Set up the log design

On this final import screen, LogPlot offers the option of creating automatically a *very basic* log design based on the imported LAS data.

1. Insert a check in the **Create LDF** check-box if you want the program to generate a log design for this data file. You might want to do this the first few times you use the program, as the generated design can be a good launching pad for creating your own designs. Once you have modified the design to include the more detailed information you'll probably want, then you should not opt for the automatic LDF file.
2. **LogDesign filename:** Click on the open-file button to the right of the prompt to enter a name for the new log design file (.ldf) to be created.
3. **Include Header Caption:** Insert a check here to include a small Static Text label above each curve in the output LDF file.
4. Next, review the curve information:

The **Min** and **Max** shown here represent the values to correspond to the left and right edges of

each curve column on the log. They will default to the data minimum and maximum for each curve. You can accept the defaults or (if you prefer to round the column extents) type in preferred **Min** and **Max** column values. For example, you might want to change a default data range of **Min** = 4.951 and **Max** = 38.453 to **Min** = 0 and **Max** = 50.

This does not affect the data itself - it just tells the program how to set the left and right edge of the curve's column in the log design.

Log: This check-box can be used to set the curve column to a logarithmic rather than linear scale. Note that logarithmic scales are undefined for zero or negative values, so don't check this box if your data encompasses this value range.

Caption: These will be the text listed in the Static Text header labels inserted into the log design if you have activated the **Include Header Caption** check-box. The default text corresponds to the curve's name (in the left column). You can type in a preferred label of up to 60 characters including spaces. Note that Static Text labels do not wrap.

Width: This establishes the width of each curve column in screen pixels. The more columns you have selected, the narrower these will default so that they'll fit into the design.

! Note that all of these settings can be modified later in the Log Designer screen.

5. Click the **Finish** button at the bottom of the LAS Import window to proceed.

The program will create a Multi-Curve data tab in the current data window, with column headings corresponding to the names of the curves you selected. The first (left-most) column will contain depths *, listed at the "Step" indicated in the LAS file. The depth range will correspond to the LAS file's Start and Stop depths, or a filtered depth range if you specified that. Each curve's data values will be listed in its column. If you requested replacement of null values with a particular replacement, these should be visible in the curve listings.

The program will also store on disk an LDF file, if you requested one.


* Some LAS files list measurements by elevation rather than depth. You can probably tell by the Start and Stop values in the file. LogPlot usually expects data to be listed as depths. If you need to convert elevations to depths, use the right-click **Column / Math / Constant** tool to subtract the surface elevation value ("Start") from the elevation listings in the Depth column, re-storing the new depth values in the Depth column.

What Next?

1. Save the imported data: Choose the Data Editor's **File / Save** command, and type in a name for this file. LogPlot data files use the file name extension ".DAT". (See Saving Data Files, page 96.)
2. Open a log design: If you requested an automatic log design during the import, access the Log Designer window and use **File / Open** to open the LDF file created by the importer. You'll probably note at this time that it's a very basic design. No fancy stuff. You can take some time at this point to jazz up the design (add header information, depth scale, curve grid lines and legends, change the curve appearances, etc.). (See Log Designer Introduction, page 15.) Or, you can proceed to

#3 to compile the data as-is into the log design as-is.

If you have an existing log design into which this data is to be plotted, you should access the Log Designer window and open that LDF file. To cross-check the files, you might click back into the Data Editor window and select Data / Check Data Against Log Design. This will give you a report of mis-matched items in the data and design files. You can update either as necessary, or go ahead and compile anyway.

3. Compile the data into the design: Click into the Data Editor window where the LAS curves are stored. Click the Compile button  or choose **Log / Compile a log**.

Accept the default log top and base. Set the scale to an appropriate vertical scale for the data range, in depth units per inch or cm. Be sure **Positive Depths** is checked if the log top and base are listed as positive values. Be sure it is not checked if the top and base are entered as negative values. **Header + Footer On Every Page** is usually turned off for long elog displays. Click the Print Setup button along the right to double-check your printer settings. (See Compiling Logs, page 163.)

Click **OK**.

The program will compile the available data into the current log design and display the graphic strip log in a Log View window. (If you see a message "The bottom must be lower than the top of a boring log", click OK and then double-check the Positive Depths setting and try again.)

4. Use the scroll bars and PgUp and PgDn buttons or keys to move around in the log display and to move to different pages. LogView can be used to save, print, and export your graphic logs. (See LogView Introduction, page 171.)
5. Go back to the log design if necessary to make changes, additions, etc., and then re-compile.

Compiling Logs

Compiling Logs Introduction

"Compiling" a log is the process of LogPlot reading the data contained in the current Data Editor window, matching data items to the items in the current log design, plotting the data in the design based on the program settings, and displaying the log on the screen.

If you have questions about entering your data or designing your log, please click on the appropriate picture, above.

Topics:

Establish program settings (below).

Compiling the log (page 164).

Compiling a batch (page 169).

Establishing Program Settings

Prior to compiling data into a graphic log plot, you need to establish a variety of program settings so that LogPlot knows how to compile the data.



1. To access the program settings, click on the **Options** button, shown above, or click on the **Options** menu. (Note that the program settings are also accessible from within the **Compile a Log** dialog box.)

The program will display a set of dialog boxes with stick-up index tabs.

All of the settings that you can establish here are saved within the program and do not need to be changed unless your preferences change. You can refer to the page numbers shown below (they jump you to the Reference section) for details.

Log Settings: Select the log design, vertical scale and units, header/footer on each page and margin, pattern density factor. (See page 191.)

System Settings: For log compiling, check the lithology and text options (reversed lithology intervals, description terminating character). (See page 198.)

Program Files: Select the active keyword, pattern, and symbol files for the current log. (See page 200.)

Printer Settings: Double-check the selected printer and the current paper size, type, and orientation. (See page 204.)

Compiling Your Log



1. When you are ready to compile your data, select the **Compile** button (shown above) from the Data Editor toolbar. Or, you can select the **Compile a Log** command from the Data Editor's **Log** menu. The program will display a dialog box where you can confirm a number of items. Each of these is discussed on the following pages, and in the Reference section.

1. Verify the printer and page settings.

2. Verify starting and ending depths for log.

3. Verify current log design (LDF) file.

4. Set vertical scale.

5. Verify header and footer settings.

6. Verify pattern settings.

Top - Bottom Settings

Depth Interval

Top of Interval: 0
Bottom of Interval: -160

These defaults are extracted from the data file's Setup tab.

Log Design File (Ctrl+O)

C:\Program Files\LogPlot 2003\LogFiles\Log10.ldf

Scaling

5 **Fit to Page**

☒ Depth Units Per Inch
☐ Depth Units per Centimeter ☐ Positive Depth

Header/Footer

☒ Header + Footer On Every Page

0.25 **Margin between Header/Footer and Log Body**

Pattern Appearance

Density Factor: 1 ☐ **No Solid Fill**

OK **Cancel** **Setup** **Help**

See the Reference section for information about many of these settings (page 191).

2. When all of the settings are displayed to your satisfaction, click on the **OK** button in the Top – Bottom Settings window to have the program compile the data into a plottable log.

That's it! The program will read the data contained in the Data Editor window and match it to the items that are declared in the log design you have selected. When all data items have been processed, the completed log will be plotted in a new window on the screen.

If the program encounters problems compiling your data, it will usually let you know and show you the location in the data file that it is having problems with. See Errors During Compiling in the Help messages (**Help / Contents**, click Index, enter Errors) for tips on data, and on problems with the appearance of your log.

See the next chapter for information on viewing, printing, and exporting the log plots.

Verify print and page settings



1. Click on the Print Setup button (shown above) to confirm the size of the paper (and its printer) to which you wish to compile the data.

! This information is stored in the log design, so if your printer hasn't changed and your preferences haven't changed, the settings should still be good.
Why it's important is because the program will use this information to know how to compile the log. It will also use this information if you ask it to fit the log on a single page (see *Scaling*).

At the top of the displayed window you will see a summary of the current printer information: the printer name, the paper size, the printable area on that paper for that printer.

In the bottom portion of the dialog box, you will see the current length and width dimensions for your log page. If any of the dimensions are shown in red, then they exceed the available dimensions for the page as shown at the top of the window.

2. To select a different printer (either for purposes of compiling the log), to change paper size, or to adjust paper orientation, click on the **Printers** button. You will see a standard Windows Print Setup dialog box where you can make your changes and click **OK** to return to the page setup window.
3. To re-calculate the LogPlot page size based on the current printer, click the **Set Default Size** button.
4. If you wish to change the units from inches to centimeters or vice versa, click the appropriate radio button. This will update the Printer Info (top) automatically. Be sure to click the **Set Default Size** button again to re-computer the new Log Designer page size.
5. When the printer and page settings are established to your satisfaction, click **OK** to return to the Compile window.

! Important Note: Any changes you make here will also be recorded in the Log Designer window and stored with the current LDF file.

Please refer to Setting the Log's Page Size (page 20) for more complete instructions.

See your Windows documentation for information about installing printer drivers, and see your printer's documentation regarding specific printer settings.

Confirm starting and ending depths for the log

Top of Interval, Base of Interval: The program pulled these depths from the data file's Setup tab.

You may type in different depths if you wish to plot a subset of the data. The program will ignore any data that is not within the range you specify here.

If your data is entered as positive depths, be sure that the **Positive Depths** check-box (in the *Scaling* section) is checked.

Verify current Log Design (LDF) file

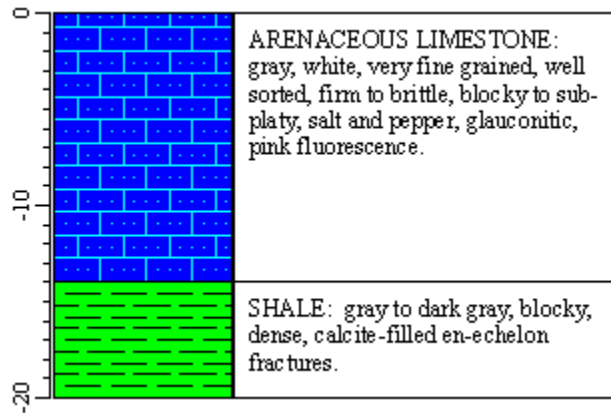
Log Design File: The name of the current log design, displayed in the LogDesign window and into which the data will be compiled, is displayed here.

If you need to open a different file, click on the Open-File button to the right of the file name to browse for a different log design file (LDF) to use for compiling.

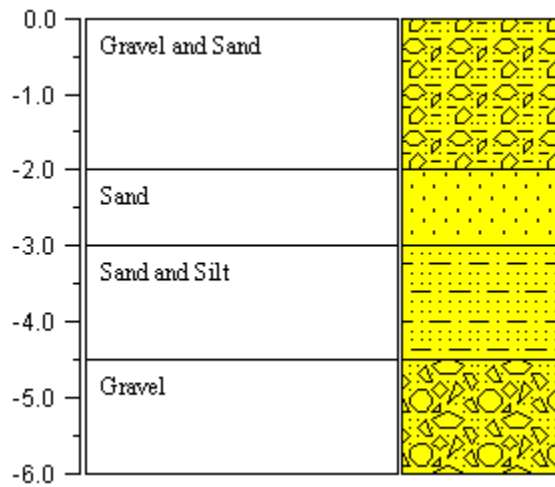
Set the vertical scale

1. First, choose your desired output units by clicking in the appropriate radio button. You can select either **Depth units per inch** or **Depth units per Centimeter**.
2. Then type in the number of your depth units you want to have represented per inch or centimeter on the output log.

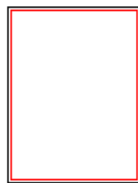
For example, if your log data's entered in feet and you've selected Depth Units per Inch, and you type in "10" for the scale, then LogPlot will compile the data so that 10 feet are represented in each inch of your output log.



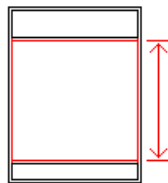
If your data is entered in meters, you've selected Depth Units per Centimeter, and you type in "1" for the scale, then LogPlot will compile the data so that 1 meter is represented in each centimeter on the output log.



3. **NEW!** If you don't need a specific scale but just want LogPlot to fit all of the data within the Top and Bottom of Interval (at top of window) in the available space on a single page, click the **Fit to Page** button. LogPlot will determine how much data will fit in how much space and update the scale displayed in the prompt box.



LogPlot reads page size and printable area from your printer driver (settings visible in File / Page + Printer Setup).



Header & footer size are read from the log design, and header/footer margin from the Compile window to determine available space for your data.

Available Space / (Top of Interval - Base of Interval) =

Scale to Fit on Page

! If you make any adjustments to the Header/Footer settings, if you adjust the printer or page size, be sure to click Fit to Page again so that LogPlot updates the calculation.

4. **Positive Depths:** Insert a check in this box if your data are entered as positive depths (e.g. values increasing as you proceed down the drill-hole).

Verify header and footer settings

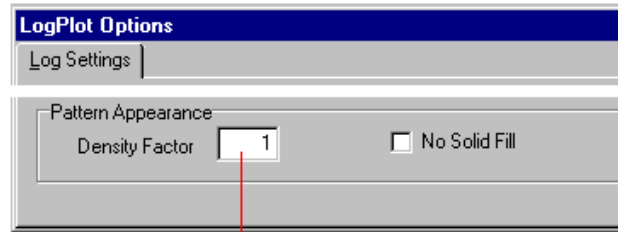
1. **Header + Footer on Every Page:** Insert or remove the check-mark in this check-box as appropriate for your log.

See page 194 for some sample scenarios.

2. **Margin between Header/Footer and Log Body:** Type in the space that to be inserted between the header and footer and the log body in the compiled log. It is expressed in either inches or centimeters, depending on the units you have established for the **Scale** setting. If no margin is desired, enter 0.

Verify Pattern Settings

1. **Pattern Density Factor:** A value of "1" will keep all lithologic patterns at their original densities. A value of "2" will make the patterns appear twice as big (half as dense). A value of "0.5" will make the patterns half as big (twice as dense). You may enter any real number value in this prompt, as it is used as a "multiplier" for the original pattern densities.

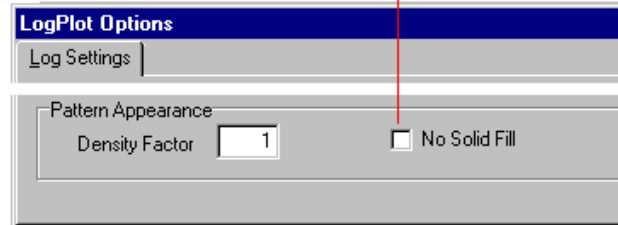


This real number value will act as a multiplier for all original lithology pattern densities as declared in the Keyword Editor. If you type in a value < 1, then the patterns will display more dense. If you type in a value > 1, the patterns will be less dense, typically for draft logs.

The pattern density change will affect Lithology Pattern columns, Pattern Percent columns, and Well Construction columns in the body of the log, and Header/Footer Pattern blocks.

2. **No Solid Fill:** If activated, any patterns defined with a non-white background color will be changed at compile time - they will display with the background color as the foreground color, against a white background.

Insert a check here if pattern blocks should NOT be filled with their background color, typically in order to save ink.



Compiling a Batch

The Data Editor's **Log** menu contains a Compile a Log command, used to compile the data currently displayed in the Editor tabs into a graphic strip log. The single log is displayed in a Plot window on the screen, where you can select menu items for saving, printing, and exporting the graphic log.

The **Log** menu's **Batch Compile** command lets you select multiple data files to compile. For each file, you can select a specific log design, plotting scale, and other items. Each compiled log can be printed and/or saved on disk as a LogPlot (.LPT) file.

! This is a different process than the "Command Line Batch" discussed in the Help messages. First, the menu-driven batch compiler lets you create the batch listing right within a program window. And, multiple files can be saved and printed. The menu-driven batch compiler does not offer screen display of the compiled logs.

How to compile and save/print a batch of data files:

Follow these steps to compile and save/print a batch of data files:

1. Select the **Log / Batch Compile** command from the Data Editor window.

The program will display the Batch Compile window.

2. Select the **Add** button to add a new action to the listing.

The program will now display the Batch Editor dialog box where you can specify file names and settings for the new batch item.

3. First you need to select the name of the data file to compile. Click on the **Browse Data Files** button and locate the desired LogPlot data file, accessing other directories as necessary. Click on the file name to highlight it, and then click **OK** to select the file and return to the Batch Editor window.

The program will scan the data file's Setup tab and insert the **Top Depth** and **Bottom Depth** settings into the Batch Editor window. You may override these if necessary.

4. Next, you need to specify the name of the LogDesign File (LDF) that contains the blueprint for the log. Click on the **Browse Format Files** button to locate the "LDF" file for the selected data file. Click on the file name to highlight it, and click **OK** to select it.

5. Back at the Batch Editor window, you can specify both the plotting scale for the data and whether a header is to be inserted on every page. For more information, see Log Settings (page 191).

6. Finally, for this batch item, you can select whether the completed graphic log is to be printed (insert a check in the **Print** box) and/or saved on disk as a Log Plot file (insert a check in the **Save as LPT** file box).

If you have requested saving as an "LPT" file, click on the **Browse Output Files** button to enter the name for the ".LPT" file that will be created.

7. When all of the information for the data file listed at the top of the window is entered to your satisfaction, click on the **OK** button at the bottom of the Batch Editor window.

All of the information will be listed on the first line of the Batch Compile window.

8. If you want to add another data file to the batch, click on the **Add** button again and repeat this process.

If you want to edit any of the entries in the Batch Compile window, click on the line to be edited and then click on the **Edit** button at the top of the window. The program will retrieve the Batch Editor.

To delete any of the entries in the Batch Compile window, click on the line to be deleted, and then select the **Delete** button at the top of the window.

9. When you are ready to process the batch, click on the **OK** button at the bottom of the Batch Compile window.

The program will start with the first data file in the list, and compile it into the requested LDF file at the indicated scale. (All other possible settings are assumed to be the current program defaults.) The completed log plot will be sent to the printer and/or saved on disk as requested.

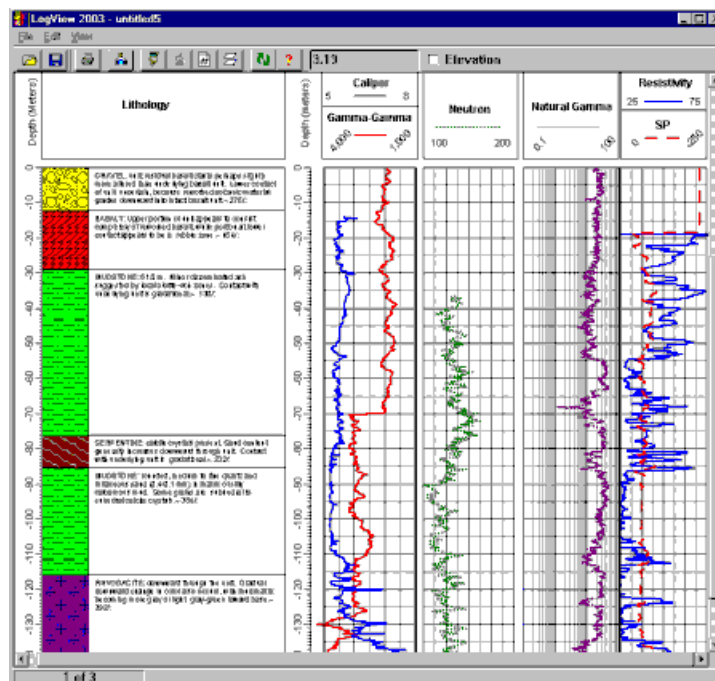
If another item is listed in the batch, the program will process it next. And so on.

Viewing and Manipulating Your Logs

Log View Introduction

When LogPlot compiles a new log, it looks at the current scaling setting AND at the current printer setup to determine how much of the log will fit on the first page. This first page will be displayed on the screen, in the Log View window.

The Log View window is used to display the compiled logs on your screen. From this window you can view, print and export the graphic logs.



A new Log View window is displayed each time a log is compiled in LogPlot. Multiple Log View windows can remain open at the same time, thus enabling you to compare logs, display them as a pseudo-cross-section, etc.

Topics:

Viewing your log pages (below).

NEW! Setting Depth Units per Page (page 173).

Viewing depth/elevation coordinates (page 174).

Saving your log (page 174).

Printing your log (page 175).

Accessing a View window (page 175).

Opening a log (page 176).

Exporting your log (page 177).

Viewing Your Log Pages

LogView displays a single log page at a time on the screen. Use these instructions to view the current page, and to display different pages of a multi-page log.

! See Adding Static Header/Footer Text regarding automatic insertion of page numbers and total pages in your log header or footer.

If you need to make a change in any of the data that was compiled into the log, you'll need to return to the Data Editor, make the necessary changes, and recompile the log. You cannot make data changes to the plot file displayed in the View window.

How to view the current page

The current page number is always displayed at the bottom of the LogView window (Page 1 of 1, Page 4 of 11, etc.).

1. To view portions of the current page that are not visible, drag the scroll bars along the side and bottom of the Log View window to change the display area.
2. You can also drag the LogView window boundaries to make the window larger or smaller to view specific portions of the log.

How to move to different pages

The current page number is always displayed at the bottom of the LogView window (Page 1 of 1, Page 4 of 11, etc.).

If your log occupies more than one page, you can use the **Page** commands in the **View** menu to view different pages of your log:



1. To advance to the next page of the plot, select the **View / Page Down** command. Or, click the **Page Down** button (shown above) or press the PgDn key.



2. To back-track to the previous page of the plot, select the **View / Page Up** command. Or, click the **Page Up** button (shown above) or press the PgUp key.



3. To jump directly to a specific page, select the **View / Go To Page...** command. Or, click the **Go To Page** button (shown above). The program will prompt you, "Go To Page..." Type in or use the up- or down-arrow buttons to declare the page number, and click OK. The program will display that page. If you enter a page number beyond the last page, LogView will simply display the last page of the plot.

Setting Depth Units per Page

LogView contains a new tool (**View / Custom Page Length**) for repaginating a multi-page log based on a user-declared number of depth units to be plotted per page. This can be used to start new log pages at regular intervals, prevent mid-interval page breaks, etc.

The current version of LogView is limited to regularly-spaced page breaks. You cannot define different break points for each log page.

How to set the depth units per page:

1. First take a good look at your log pages to determine the best number of depth units to be displayed on each page of your log.

Note that if the layout of the log pages varies (e.g. the log contains a smaller Header 2 or if it doesn't include headers on each page), be sure to estimate the optimal number of units per page based on the page displaying the fewest depth units. That way it won't be clipped (though subsequent pages will have more white space).



2. Select the **View / Custom Page Length** command or click the **Custom Page** button (shown above).
3. Insert a check in the **Enable Custom Page Breaks** check-box.
4. In the **Depth Units per Page** prompt, type in the number of depth units to be displayed on each page of your log.
5. Click OK and the program will repaginate the log to display the requested number of units on each page.

If LogView can't fit the requested number of units on the page, because of page size, header/footer size, header/footer margin, etc., you may see partial pages. If this is the case, follow the steps above to reset the number of units to a larger value (more log per page) and try again.

Viewing Depth/Elevation Coordinates

Once a log is displayed in the View window, you can use the mouse pointer to determine the depth or elevation at any point on the log, in the units in which the log was compiled. This can be helpful if you wish to determine elevations at the top of stratigraphic units, for example, or to note the depth at which you wish to insert a text notation for a later re-compilation of the data.

How to view depth/elevation coordinates:

1. Insert a check-mark in the **Elevation** check-box at the top of the View window if you wish to view the coordinates in elevations, or leave the check-box blank if you prefer to view points as depths below the surface.
2. Use your mouse to point to any place on the log, and view the coordinates displayed to the right of the toolbar buttons.
3. You can copy a particular depth to the clipboard using Log View's **Edit / Copy Depth** (Ctrl + D) command. With the mouse pointing to the location in question, press the Ctrl key while you type the D key, and the depth or elevation shown in the title bar will be copied to the clipboard. You can paste this number into another document using its **Paste** command.

Saving Your Log

When you have compiled a log and it is displayed on the screen in an untitled View window, you can save your log plot on disk so that you can re-open it at a later time for viewing or printing.

Notes: Log diagrams that you create in the LogPlot program are stored on disk in a "log plot" format with an "LPT" file name extension. This is the only type of plot file that LogPlot creates, opens, or saves.

You can *export* logs to a different graphic file format; see exporting logs (page 177).

LPT files store the log scaling, page size, and paper orientation (landscape versus portrait) so that when reopened they should appear as they did when first created.

In typical Windows fashion, LogPlot will normally warn you if you try to close the View window if the log inside it has not been saved. You can turn this warning off, under the LogPlot Options / System Settings window.

How to save a log plot as an LPT file:

1. Be sure the log you wish to save is the active LogView window.



2. Select the **File / Save As** command, or the **Save As** button from the View window's toolbar.
3. Enter the name to assign to the log plot file, accessing necessary drives and/or directories. LogView will automatically append an .LPT file name extension to the name you enter.
4. Choose the **OK** button when you are ready for the program to save the log plot.

Printing Your Log

Any time that you have a log displayed in the View window on the screen, you can output the plot to a printer.

Notes:

The vertical scale of your log cannot be changed in the LogView window. The scale must be established **before** the log is compiled and displayed in the Log View window. If you wish to create the log at a different scale, you need to switch back to the main program window, change the vertical scale setting in the Compile window, and recompile the log.

LogView can, however, change the number of units plotted on each page at the current scale. See Setting Depth Units per Page (page 173).

How to print your log:



1. Select the **Print** command from the LogView **File** menu, or click on the **Print** button, shown above.

The program will display the standard Windows dialog box for the printer that you have selected.

2. Choose the page range for the print job, and the number of copies.
3. Use the Properties button to access printer-specific settings as necessary. (See your printer documentation for details.)
4. When you are ready to print, choose **OK**. Or, to return to the LogPlot screen without printing, choose the **Cancel** button.

See "Printing Tips" in the Help messages' Reference / Troubleshooting section if you need help.

Opening/Accessing a LogView Window

When the LogPlot program first starts, only the Data Editor and Log Design windows are open. If you proceed to compile a log, the program will then automatically open a "LogView" window in which it will display the plotted log.

If you do not wish to compile a log, but to open an existing log plot that you compiled earlier and saved on disk, you can do so by first accessing a LogView window, and then opening the saved log plot file (LPT).

Because LogPlot lets you keep multiple LogView windows open at any time, it's pretty easy to lose track of which windows are open but buried on your computer screen. The second tip below offers instructions about finding already-open LogView windows.

How to open a new LogView window:

1. To open a new LogView window, click on the **File** menu in the main LogPlot toolbar and choose the **New** option.
2. From the pop-up menu, choose **LogView**.

The program will display a new, empty Log View window.

3. At this time, you can open a saved plot (.LPT) file by clicking the LogView window's **File / Open** command.

How to access an existing LogView window:

1. To access an existing Log View window, in which a log is already displayed, click on the **Window** menu in the main LogPlot toolbar. Displayed in this menu will be the names of the current LogView windows.
2. Click on the name of the window you wish to access.

The program will bring that window to the foreground.

3. You can save, print, or export the current log. Or, you can open a new LPT file into this window.

Opening a Log

If you have saved a log plot on disk, as an .LPT file, it is possible to re-open it into a LogView window for viewing, exporting, and printing.

Because scaling, page size, and paper orientation are stored in the LPT file, these files should look the same when re-opened as they did when originally created. However, if you have a different printer now set as default, or are opening the LPT file on a different computer (presumably with a different printer), you may see a warning that the page size has changed. Follow the instructions under the Update Page Size (page).

! *Because of this different file structure, LogPlot2003 cannot open LPT files created in LogPlot98 or earlier versions of the program! It does open LPT files saved in LogPlot2001.*

How to open an existing LPT file:

1. Access a LogView window, if necessary.



2. Select the **Open** button from the toolbar, or the **Open** command from the LogView **File** menu.
3. Select the log plot (LPT) file that you wish to display on the screen by highlighting it and choosing the **OK** button. LogPlot creates and opens files in the "LogPlot format" (LPT) only.

The program will plot the first page of the log on the screen. You may use the scroll bars on the side of the View window to view hidden portions of this page, or you can advance to subsequent pages of the log, if any. The current page, and total number of pages is displayed in the Reference Bar at the bottom of the View window.

How to update the page size, if necessary:

If your computer's current printer page setup is different than that stored in the LPT file, the program will display a warning, "The Log and Printer Page Size do not match. Do you want to adjust the page size?"

1. You will usually click **Yes** so that you can view the discrepancy and update the page to prevent clipping.

Click **No** if the log should be displayed as it was originally compiled, but there can be clipping that occurs.

If you clicked Yes, you will see a window showing your computer's current printer and paper size (top of window) as well as the paper size saved in the LPT file (bottom of window). This warning occurs because even similar printer models may have SLIGHTLY different active paper sizes (e.g. 10.67" x 8.17" versus 10.58" x 8").

What to do next depends on several scenarios:

- 2a. If your paper size is similar to the log's page size, you should just click the Set Default Size button, and then click OK. The log will be displayed on the screen at the new page size, to match your printer.
- 2b: If your paper is considerably smaller than the log, you should simply click OK, WITHOUT clicking Set Default Size.

The program will warn you that the log is larger than your printer paper and ask "Do you want to fix?" - you should click No.

The log will be displayed on the screen at full size, but if you then try to print, it may be clipped.

3. You can view the log and/or print the log (with caveats noted above).

Exporting Your Log

When you have compiled a log and it is displayed on the screen, you may save it in a native LogPlot format (LPT) as discussed under "Saving Your Log," or you may save the log in four more universal graphic formats. Log export is available using the View window's **Export** command.

How to export logs as WMF or EMF:

This export tool exports the entire log to a metafile format. The first-page header and final footer can be included in the export; the body of the log will be exported as continuous (no breaks, and no headers on intermediate pages).

The maximum plot length is 340 inches.

1. Be sure the log that you wish to export is displayed in the active LogView window.
2. Select the **Export** command from the LogView **File** menu.
3. Select the **Metafile (wmf + emf)** option.

The program will display the export dialog box.

4. Enter the requested information.

Windows Metafile (*.wmf), Enhanced Metafile (*.emf): Click in one of these radio buttons to determine the export metafile type.

Filename: Click on the Open-button at the right edge of the prompt to enter the name to assign to the exported file, accessing other folders or drives as necessary. Click **OK** to return to the export dialog box. The program will append the appropriate file name extension (.EMF or .WMF) automatically.

Plot Header: Insert a check here to include the first header in the log export.

Plot Footer: Insert a check here to include the final footer in the log export, at the end of the continuous log body.

5. Choose **OK** to continue.

The program will store the log on disk in the selected metafile format, under the declared file name. This WMF or EMF log can then be opened in other graphics applications, inserted into word processing documents, etc. Note that you cannot open the WMF or EMF version of the log within LogView.

You may find that the appearance of the WMF or EMF file can vary greatly, depending on the application being used to view it.

How to export logs as BMP:

This export tool exports the *current log page* (not the entire log) to a Windows Bitmap (BMP) format. The exported page will have the same page dimensions and header and footer information as you see on the screen display.

1. Be sure the log that you wish to export is displayed in the active LogView window.



2. Advance to the page you wish to export (each is exported separately) as necessary, by clicking the Page Down, Page Up, or Go To Page buttons in the View window toolbar.
3. Select the **Export** command from the View window's **File** menu.
4. Select the **BMP** option.
5. **Filename:** Click on the Open-button at the right edge of the prompt to enter the name to assign to the exported file, accessing other folders or drives as necessary. Click **OK** to return to the export

dialog box. The program will append the appropriate file name extension (.BMP) automatically.

6. **Bitmap Colors:** Select the number of colors you wish to have stored in the exported file. Bear in mind the greater the color depth, the larger the output BMP file. For your reference, the program will display in the window the output file size under current settings.

We recommend you start with 16 colors or 256 colors and, if you find these inadequate, then try again with a High or True color export.

(See also JPEG export for another bitmap-type format which creates *much* smaller output files using high color.)

7. **Pixels/Inch:** In this prompt, type in the number of bitmap pixels you want per horizontal and vertical inch of the bitmap image. For display on screen, the default settings of 96 (your screen pixels per inch) should work fine.

For print output, you should enter a greater value. How much greater? As with the colors, the resolution will have a great effect on the output BMP file size; the larger the number of pixels per inch, the larger the output file. (Again, refer to the program's file size reference right inside the export window.) You might start with a resolution of 150 pixels/inch and if you find this inadequate (too pixel-y or block in appearance) try again at 250 or 300.

8. Click **OK** to proceed.

The program will store the current page of the log on disk in a Windows Bitmap format. This BMP file can then be opened in other graphics applications, inserted into word processing documents, etc. Note that you cannot open the Bitmap version of the log within LogPlot.

How to export logs as JPG:

This export tool exports the *current log page* (not the entire log) to a JPEG (JPG) format. The exported page will have the same page dimensions and header and footer information as you see on the screen display.

(See also Bitmap export which creates BMP files.)

1. Be sure the log that you wish to export is displayed in the active LogView window.



2. Advance to the page you wish to export (each is exported separately) as necessary, by clicking the Page Down, Page Up, or Go To Page buttons in the View window toolbar.
3. Select the **Export** command from the View window's **File** menu.
4. Select the **JPEG** option.
5. **Filename:** Click on the Open-button at the right edge of the prompt to enter the name to assign to the exported file, accessing other folders or drives as necessary. Click **OK** to return to the export dialog box. The program will append the appropriate file name extension (.JPG) automatically.

! The Log Designer window saves log design previews in a JPEG format. If you assign the export

JPG file the same name as your LDF file, you may overwrite the preview.

6. **Compression quality:** Use the slider bar to select also the compression style. Generally, the greater the compression you select (by dragging the slider bar to the left) the lesser the output quality. Because the JPEG graphic format stores information very efficiently, you might start with relatively low compression to achieve better quality.

7. **Pixels/Inch:** In this prompt, type in the number of bitmap pixels you want per horizontal and vertical inch of the JPEG image. For display on screen, the default settings of 96 (your screen pixels per inch) should work fine.

For print output, you should enter a greater value. The resolution will affect the output JPG file size, but not by as much as it does the BMP export. You might start with a resolution of 150 pixels/inch and if you find this inadequate (too pixel-y or block in appearance) try again at 250 or 300.

8. Click **OK** to proceed.

The program will store the current page of the log on disk in a JPEG format. This JPG file can then be opened in other graphics applications, inserted into word processing documents, etc. Note that you cannot open the JPEG version of the log within LogPlot.

How to export logs as HTML:

This export tool exports the log displayed in the View window to an HTML table: It captures each page of the log in a JPEG (JPG) format, and then inserts the JPG images into the HTML table. When displayed in a web browser application, the logs appear continuous.

This is a great way to share logs for display on the screen, since JPG files are small in size and HTML documents are read universally by web browsers. The only drawback to this export tool would be any viewing and (especially) printing limitations inherent to the browser you are using to open the HTML table. For example, you can't print a continuous log from the browser window even though it looks continuous on the screen.

1. Be sure the log that you wish to export is displayed in the active LogView window.
2. Select the **Export** command from the View window's **File** menu.
3. Select the **HTML Table** option.
4. **Filename:** Click on the Open-button at the right edge of the prompt to enter the name to assign to the exported file, accessing other folders or drives as necessary. Click **OK** to return to the export dialog box. The program will append the appropriate file name extension (.HTML) automatically.
5. Because the graphic part of the log is exported as a JPEG image, you need to establish these JPEG settings:

Compression quality: Use the slider bar to select also the compression style. Generally, the greater the compression you select (by dragging the slider bar to the left) the lesser the output quality. Because the JPEG graphic format stores information very efficiently, you might start with relatively low compression to achieve better quality.

Pixels/Inch: In this prompt, type in the number of bitmap pixels you want per horizontal and vertical inch of the JPEG image. For display on screen, the default settings of 96 (your screen

pixels per inch) should work fine. Because HTML is designed primarily to be a screen-display tool for logs, we don't usually recommend higher resolution for these JPEG pages or the logs will look huge.

6. **View in browser:** Insert a check here if you want your default web browser to be launched automatically when the export is complete, and to load the log's HTML table and linked JPG files in the browser for viewing. LogPlot will launch the browser that is associated in Windows with "HTML" or "HTM" file name extensions.
7. Click **OK** to proceed.

The program will create JPG images of each page of your log, naming each the same file name as that assigned to the HTML file, followed by a "_page_1" for the first page, "_page_2" for the second, etc. It will then create an HTML file which contains a table listing the JPG image names, storing the file on disk under the name you specified.

For example, if you named your export file "ProjectA.html", and the log consists of two pages, the graphic representation of these pages would be stored in files named "ProjectA_page_1.jpg" and "ProjectA_page_2.jpg" which would be listed in the HTML table.

If requested, the HTML table will be opened into your web browser and displayed on the screen.

Please see your web browser's documentation for details about viewing and printing your logs.

! If you wish to send this exported log to a co-worker, *be sure* to send the HTML file *and* the JPG images that are linked to it, representing each page of your log.

Other LogPlot Tools

Editing Keywords

What is a "keyword"?

A keyword is a word or set of words that is used to describe a lithologic interval and is declared in a LogPlot data file in a Lithology tab. The program uses the keyword to associate the lithology with a particular pattern, which will be plotted in a Lithology Pattern column on the log. The keyword text and/or additional descriptive text can be plotted in a Lithology Description column on the log.

Keywords are also listed in the Percent tab for pattern representation in a Pattern Percent column.

Keywords are also listed in the Well-Column tab for pattern representation in a Well Construction column.


The association between the keyword and the graphic pattern is done in LogPlot's "*Keyword file*". You can maintain different Keyword files for different projects.


Can I change or add keywords?

You bet. The Keyword file can be viewed, new keywords created, patterns/colors changed in the *Keyword Editor*.

See the Keyword Editor Window (below) for general information. Please refer to the Help messages for the specific How-To's below.


How to...

 Access the Keyword Editor from the program window. See **Help / Contents / Other LogPlot Tools / Editing Keywords Introduction**.


 Access the Keyword Editor from a Lithology or Well Construction tab. See Help as above.


 Search for keywords. See Help as above.

 Create new keywords. See Help as above.

 Delete keywords. See Help as above.


 Open a different keyword file. See Help as above.

 Save keyword changes or cancel without saving. See Help as above.

 Save the keyword file under a new name. See Help as above.

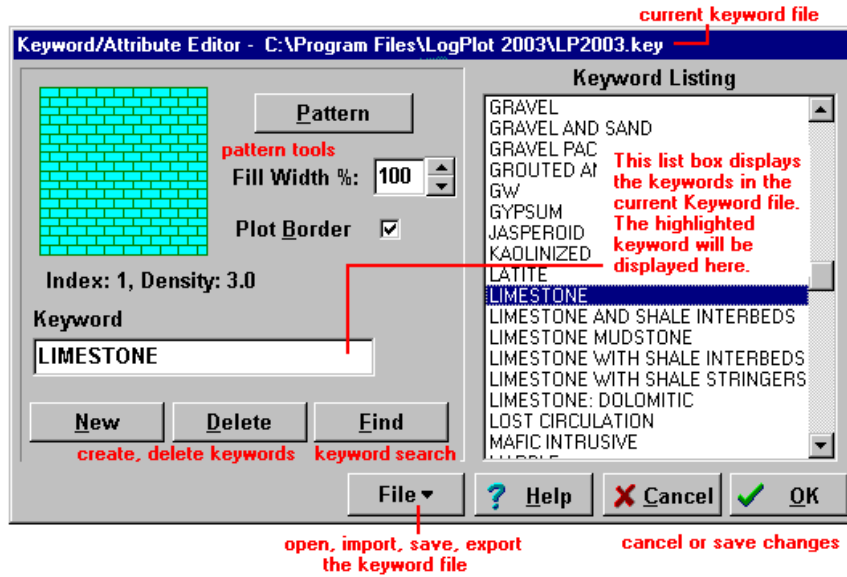
 Combine keyword files. See Help as above.

 Import keyword files. See Help as above.

 Export a text list of keywords. See Help as above.

 Select Patterns for keywords. See Help as above.

The Keyword Editor Window



The list box on the right side of the Keyword Editor lists the keywords in the current keyword file (whose name is displayed at the top of the window). Keyword characteristics:

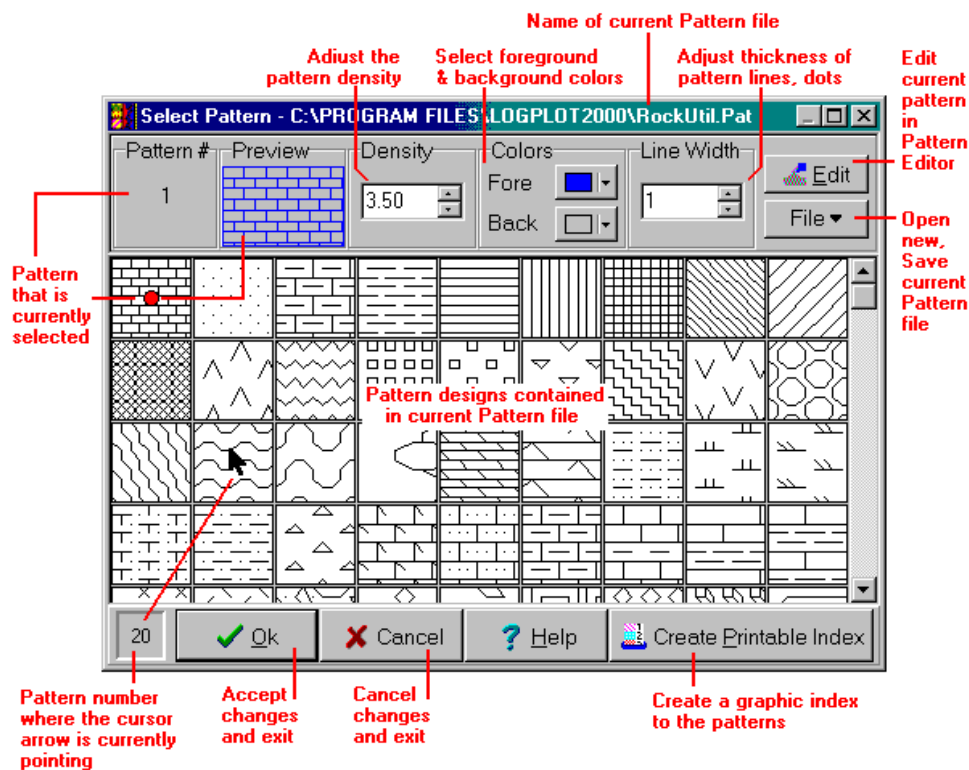
- Keywords may be **single** words or **multiple** words.
- Keywords may be up to **60 characters** in length, including spaces.
- Keywords will be **sorted alphabetically** within the editor.
- When you click on the **New** button to create a new keyword, it will insert it as a "New Key." When you enter the keyword text, the listing will be re-sorted alphabetically.
- Keyword matching is **NOT case sensitive**. This means that an entry of "Limestone" in the data file will match with an entry of "Limestone", "LIMESTONE", or "limestone" in the keyword file.

Selecting Patterns for Keywords

The Select Pattern Window


The Select Pattern window is displayed when you click the Pattern button or the pattern picture in the Keyword Editor. This window is used to select the pattern's appearance for the current keyword (pattern design, density, colors, and line thickness). It is also used to manage the Pattern file (save changes, open a different file), to create a printable index of the patterns, and to access the pattern editor.


Click on a portion of the picture below to jump directly to its topic, or choose from the list at the end of this topic.




The Select Pattern window and the Pattern Editor are also accessible using the LogPlot **Tools / Pattern Editor** option. Please refer to the Help messages for details on the how-to topics below.


How to...


 Display the pattern designs. See **Help / Contents**, and expand the heading "Other LogPlot Tools" in the Contents tab. Expand "Editing Keywords" and "Selecting Patterns for Keywords," and click on "The Select Pattern Window."


 Select a pattern. See Help as above.


 Adjust the pattern size or density. See Help as above.

 Select the pattern colors. See Help as above.

 Select the pattern line width. See Help as above.

 Open a different Pattern file. See Help as above.

 Save the Pattern file under a different name. See Help as above.

 Create a printable pattern index. See Help as above.

 Access the Pattern Editor. See Help as above.

Editing Patterns

Editing Patterns Introduction

Patterns are repeating graphic designs that can be associated with keywords in LogPlot to represent lithology type, to illustrate fossils or mineralization, and to represent materials used in well construction columns.

LogPlot is shipped with a factory library of pattern designs, stored in a "Pattern file". The default Pattern file is declared in the **Options / Program Files** menu. LogPlot offers tools to view the current pattern library, edit pattern designs, create new patterns, open a different Pattern file, and more.

1. To access the Pattern Editor, select the **Pattern Editor** command from the LogPlot **Tools** menu.

The program will display the Select Pattern window. This is where you select patterns, access different Pattern files, create an index, etc.

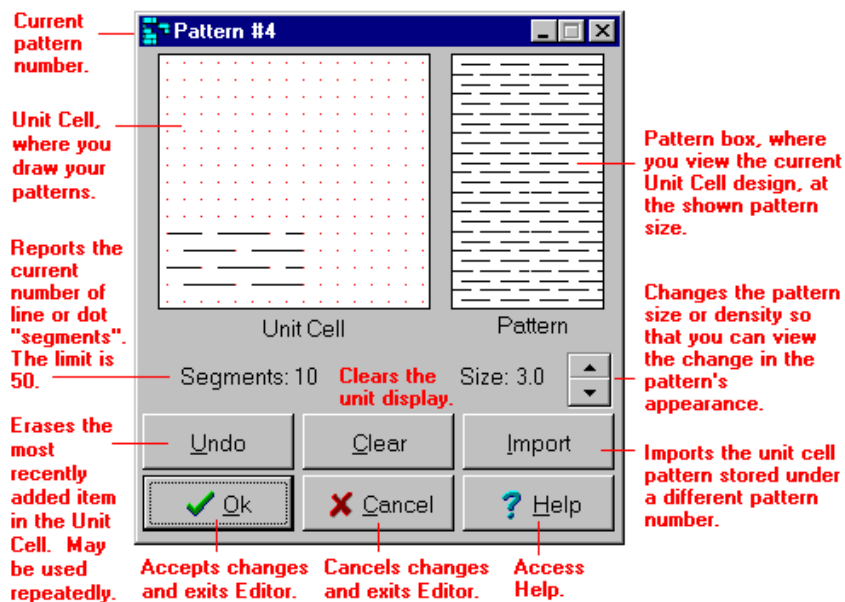
2. Locate the pattern in the listing that you wish to edit, and click once on it. This is now the current pattern, and its preview will be displayed in the upper-left.

If you wish to create a *new pattern from scratch*, select a blank pattern box. You may need to scroll down in the listing to locate a blank entry.

3. Click on the **Edit** button that's in the upper-right corner of the Select Pattern window.







The Pattern Editor Window

When you click on the Edit button in the Select Pattern window, the program will display the Pattern Editor, with the selected pattern's design displayed.



Please see the Help messages for specific information on the how-to steps listed below.

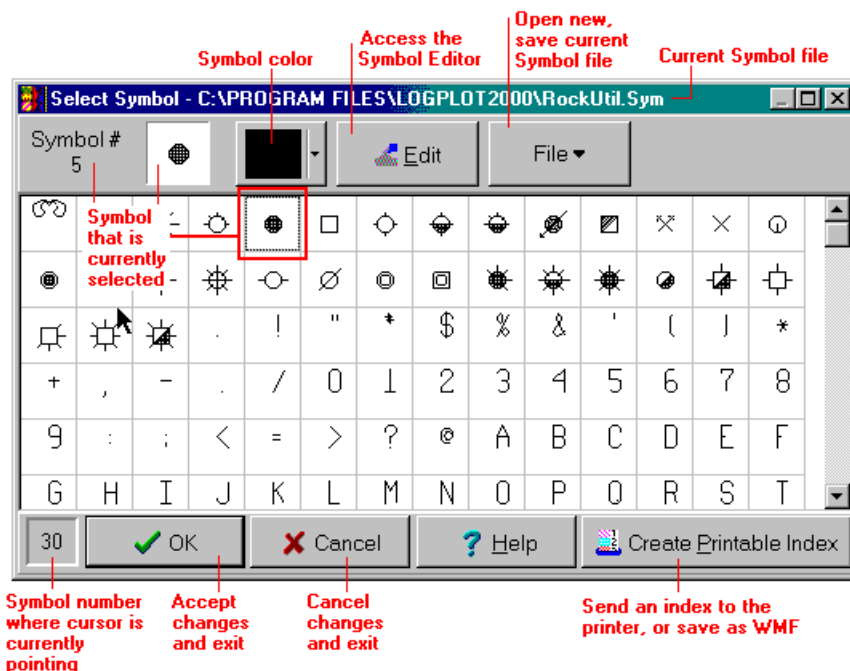
How to...

-  Create new patterns. See **Help / Contents**, and expand the heading "Other LogPlot Tools" in the Contents tab. Expand "Editing Patterns" and click on "Editing Patterns Introduction."
-  Import existing patterns. See Help as above.
-  Edit existing patterns. See Help as above.
-  Draw patterns. See Help as above.
-  View the pattern size. See Help as above.
-  Exit the pattern editor. See Help as above.

Editing Symbols

The Select Symbol Window

The Select Symbol window is displayed when you insert a symbol in a log design's header or footer or when you are entering data in a Symbol data tab. This window is used to select the symbol to be inserted, and to choose its color. It is also used to manage the Symbol file (save changes, open a different file), to create a printable index of the symbols, and to access the Symbol Editor.



The Select Symbol window and the Symbol Editor are also accessible using the LogPlot **Tools / Symbol Editor** option.





See the Help messages for information about the how-to topics listed below.

How to...

View and select symbols. See **Help / Contents**, and expand the heading "Other LogPlot Tools" in the Contents tab. Expand "Editing Symbols" and click on "The Select Symbol Window."

Select the symbol color. See Help as above.

Open a different symbol file. See Help as above.

-  Save the symbol file under a different name. See Help as above.
-  Create a printable symbol index. See Help as above.
-  Access the symbol editor. See Help as above.
-  Editing Symbols. See **Help / Contents**, and expand the heading “Other LogPlot Tools” in the Contents tab. Expand “Editing Symbols” and click on “Editing Symbols Introduction.”

Reference

Program Settings

Prior to entering your data and compiling the data into a graphic log plot, you need to establish a variety of program settings so that LogPlot knows how to deal with all of your information..



1. To access the program settings, click on the **Options** button, shown above, or click on the **Options** menu. (Note that many of the program settings are also accessible from within the **Compile a Log** dialog box.)

The program will display a set of dialog boxes with stick-up index tabs.

All of these settings are saved within the program and do not need to be changed unless your preferences change.

Topics:

Log Settings: Select the log design, vertical scale and units, header/footer on each page and margin, pattern density factor. (See below.)

System Settings: On/off tutorial, close-file save prompts, log design preview. Description settings (reversed lithology intervals, description terminating character). (Page 198.)

Program Files: Select the active keyword, pattern, and symbol files for the current log. (Page 200.)

Startup / Login: Show/hide initial login screen, establish network login settings. (Page 203.)

Printer Settings: Double-check the selected printer. (Page 204.)

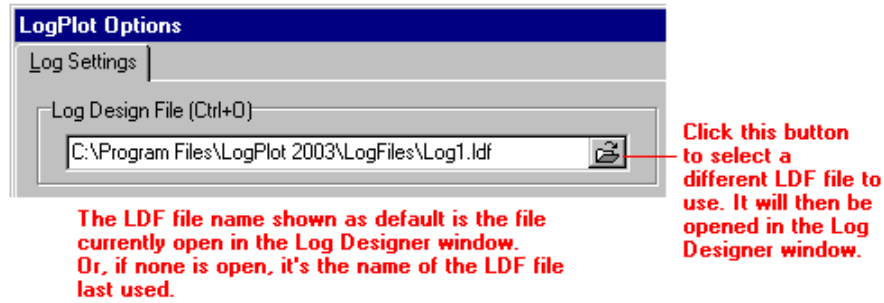
Log Settings



Access the Log Settings by clicking on the **Options** toolbar button, shown above, and then clicking on the **Log Settings** tab. Or, you can click on the **Options** menu on the main toolbar and select **Log Settings**.

Select the Log Design File

Log design files (LDF files) are like the blueprints for the log, and are created in the Log Designer window. When you compile your data into a plottable log, LogPlot needs to know which design to use. Do this using the **Options / Log Settings** tab.



To select a different log design file to be default:

1. In the **Options / Log Settings** tab, click on the open-file button to the right of the file name, and the program will display the Open Log Format window.
2. Select the log design file to become default, accessing other directories as necessary.

Preview Window: If a JPG preview exists for the LDF name currently highlighted, it will be displayed along the top of the window. Previews can be created automatically when the log design is saved. To view more/less of the design, you may adjust the preview scale and you may enlarge the window.

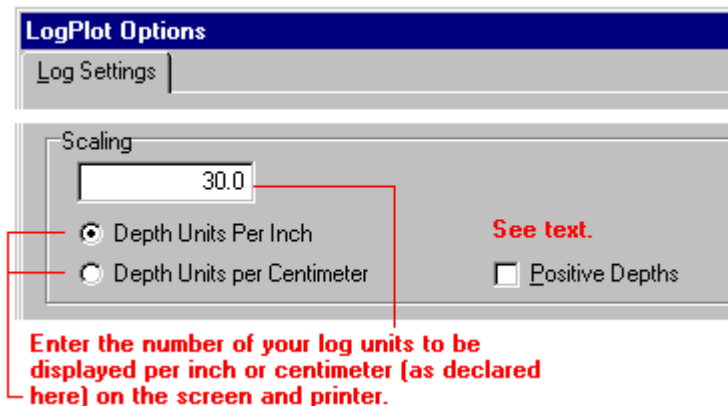
If no JPG preview exists, none will be displayed in the Open Log Format window. JPG preview files are not required for design editing or compiling; they're just handy.

3. When the desired log design is highlighted, choose **OK** to select it.

The new file name will be displayed in the Log Settings window, and in the Reference Bar at the top of the main LogPlot toolbar.

The new file will also be opened into the Log Designer window. If another LDF was already displayed there, it will be closed. If that file had been modified, you will be prompted whether the changes are to be saved prior to closing.

Set the Log Scale



Log scaling represents the number of data units (such as feet or meters) to be plotted per vertical inch (or cm) on the screen or output plot. If, at a particular scale, you have more data than will fit on one page, LogPlot enables you to view all of the subsequent pages, one at a time.

(The size of the page that LogPlot will use is determined by the printer and paper size that you have selected under **File / Page + Printer Setup** or via the **Print Setup** button in this Settings window.)

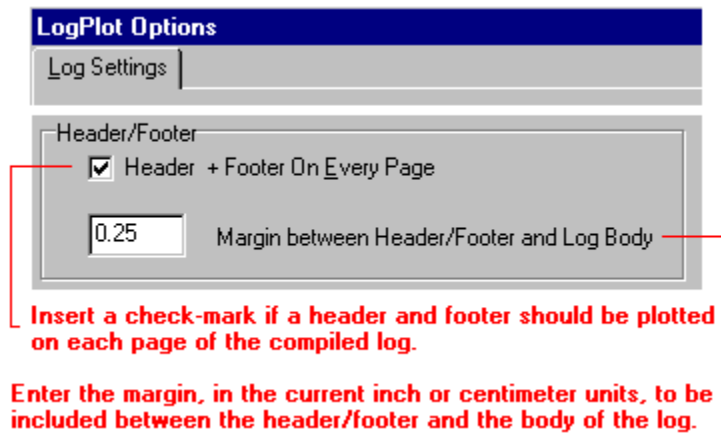
The current scaling default will be displayed in the prompt box. (It will also be displayed in the Reference Bar at the bottom of the program window.)

! Setting the scale must be done *before* a log plot is generated. You cannot rescale an existing log plot that is saved on disk or is displayed in the Plot window. If you wish to view a log at a different scale, you must instead create a new plot, by setting the new scale in the Settings window, and then recompiling the data into a log plot.

To change the default scale:

1. In the **Options / Log Settings** tab, select the output units (inch or centimeter) to be represented in the scale.
2. Type in the new scale in the displayed prompt box, representing the number of your data units to be plotted per inch or centimeter on the screen and printer.
3. **Positive Depths:** Insert a check in this box if your data are entered as positive depths (e.g. values increasing as you proceed down the drill-hole).

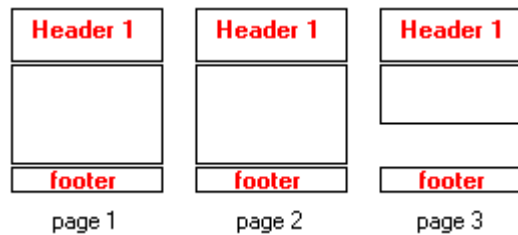
Turn off headers/footers on every page



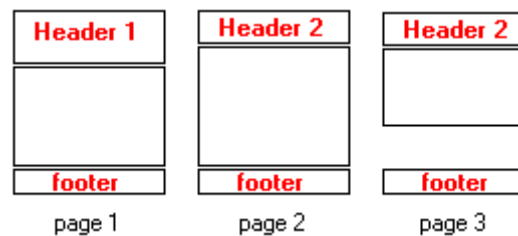
1. In the **Options / Log Settings** tab, insert or remove the check-mark in the **Header + Footer on Every Page** check-box.

Some scenarios:

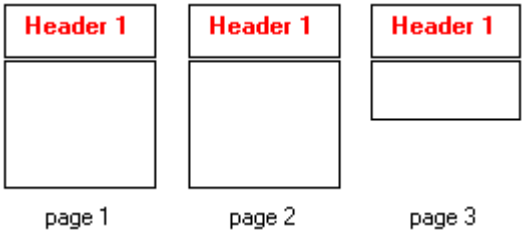
Single-sheet log: If you want a header and footer on each page, to achieve single-sheet logs, insert a check-mark in the **Header + Footer on Every Page** box. If there is only one header in the log's design, it will be plotted at the top of all pages.



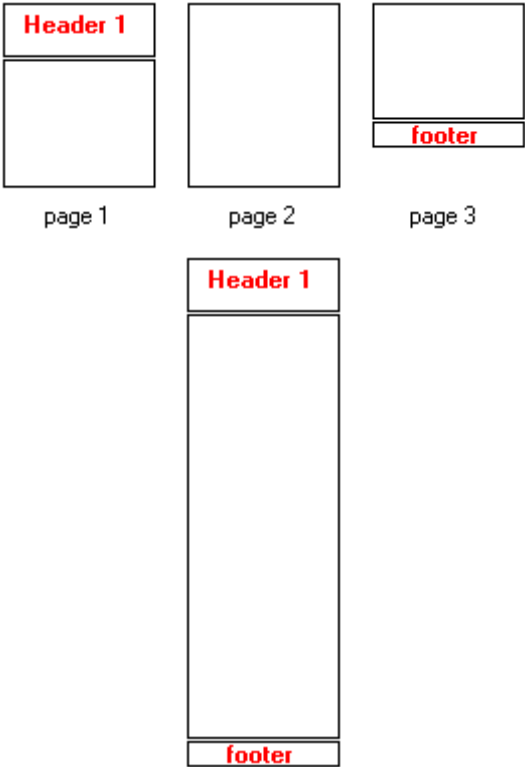
If there is a Header 2 in the log design, it will be plotted at the top on page 2 and beyond.



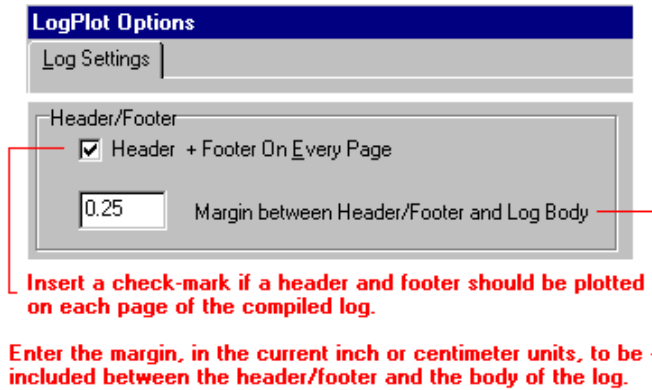
With this setting, the log footer will be plotted at the base of each page. If there is no footer in the log's design, the log body will simply be plotted to the bottom of each page.



Continuous log: If you are printing on continuous paper or simply wish to omit headers and footers from intermediate pages, remove the check-mark in the **Header + Footer on Every Page** box. Header 1 will be plotted on the first page, at the top of the log. The footer, if any, will be plotted on the last page, at the end of the entire log.



Set the header/footer margin

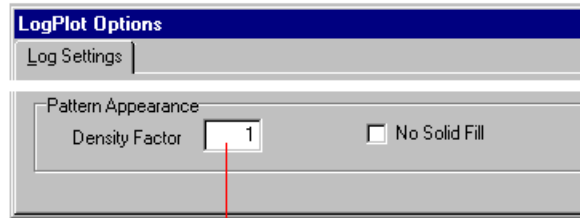


1. In the **Options / Log Settings** tab, type in the **Margin between Header/Footer and Log Body**.

This setting represents adjust the space that is inserted between the header and footer and the log body in the compiled log. It is expressed in either inches or centimeters, depending on the units you have established for the **Scale** setting.

Change the overall pattern density

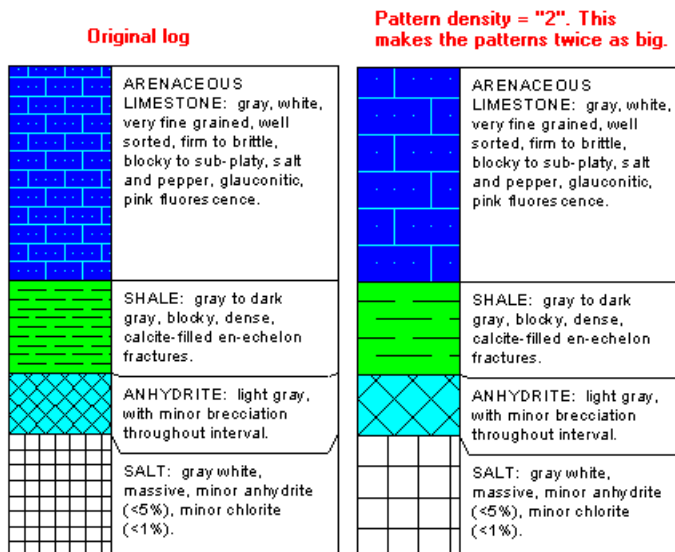
1. In the **Options / Log Settings** window, type in a new value in the **Pattern Density Factor** prompt:



This real number value will act as a multiplier for all original lithology pattern densities as declared in the Keyword Editor. If you type in a value < 1, then the patterns will display more dense. If you type in a value > 1, the patterns will be less dense, typically for draft logs.

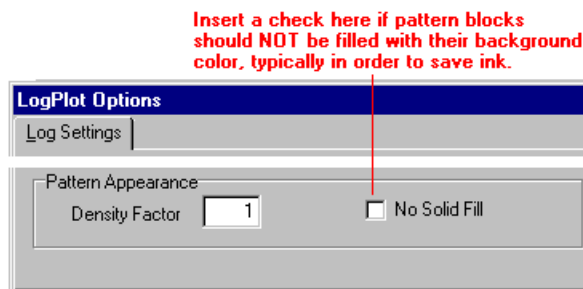
A value of "1" will keep all lithologic patterns at their original densities. A value of "2" will make the patterns appear twice as big (half as dense). A value of "0.5" will make the patterns half as big (twice as dense). You may enter any real number value in this prompt, as it is used as a "multiplier" for the original pattern densities.

The pattern density change will affect Lithology Pattern columns, Pattern Percent columns, and Well Construction columns in the body of the log, and Header/Footer Pattern blocks.

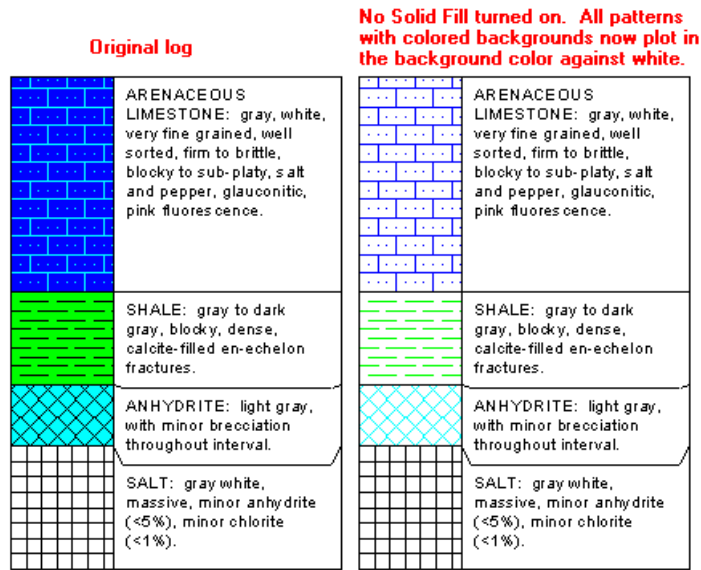


Turn off pattern background colors

1. In the **Options / Log Settings** window, insert a check-mark in the **No Solid Fill** check-box.



During log compiling, any patterns defined with a non-white background color will be changed. Now, they will display with the background color as the foreground color, against a white background.



System Settings



Access the System Settings by clicking on the **Options** toolbar button, shown above, and then clicking on the **System Settings** tab. Or, you can click on the **Options** menu in the program toolbar and select **System Settings**.

Establish general options

1. Click on the **Options** menu and choose **System Settings**.
2. **Show tutorial on program start:** Insert a check-mark in this box if you want the program tutorial to be opened and displayed on the screen each time the program is started. To turn off the automatic launching of the tutorial screen, remove the check-mark.

Note that the tutorial can also be accessed at any time from LogPlot's **Help** menu (**Tutorial** command).

3. **Prompt to save modified files:** Insert a check-mark in this box if you want to be prompted to save Untitled log plots before closing or exiting the Plot window. Disabling this reminder means that the program will permit you to close a Plot window without saving, thus "throwing away" any plot displayed within it.

! We do not recommend disabling this setting.

4. **Create a Log Designer preview:** Insert a check-mark in this box if you want the Log Designer window to create a JPG preview of the current Log Design File (LDF) when it is saved. This can be helpful the next time you go to open the log design, as its preview will be displayed and helps to confirm you're opening the intended file. Remove this check-mark to disable this automatic preview creation.
5. **LogView Warning:** LogView is the window in which the compiled, graphic logs are displayed. LogPlot allows multiple LogView windows to be displayed at any time. If the **LogView Warning** settings is checked, this tells the program to display a warning when a certain number of View windows are displayed. The number is declared in the prompt box to the right. Enabling this warning can be helpful to prevent overuse of your computer's resources.
6. **Show Hints:** If this setting is activated (checked), then the program will display small explanations or hints about program buttons or settings under the pointer.

Establish some lithology settings

1. Click on the **Options** menu and choose **System Settings**.
2. **Accept Reversed Lithology Depth Intervals:** This setting can be handy if you are creating measured sections, and your lithologic information is entered into the Lithology tab in reversed order.

Typically, LogPlot requires that all data be entered from the top of the diagram downward, for example, from an elevation of 3000 to 2500. This setting, if activated, permits you to enter your lithology data instead from elevation 2500 to 3000.

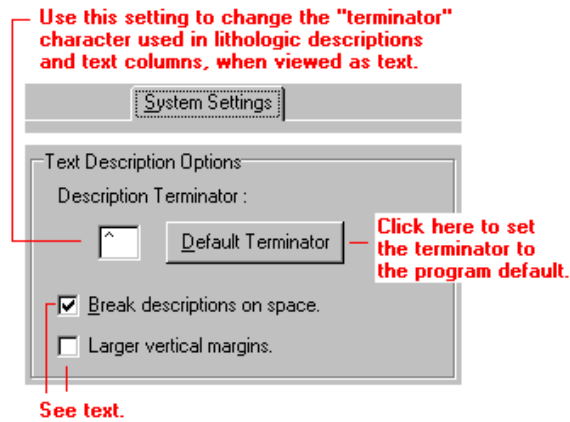
Insert a check-mark in this box if the data you have entered into the Lithology data tab has been entered in reverse order, from the bottom of the log to the top.

If activated, LogPlot will simply internally reverse the order of the lithology data.

! This setting affects Lithology tab data only.

3. **Description Terminator:** This is a somewhat obscure setting which you can ignore unless:
 - * You are opening into the data window or compiling existing data files created with LogPlot v.1 or LogPlot97 in which you used a non-default terminating character, or
 - * You will be exporting data files from the LogPlot data window and need to use a non-default terminating character.

If you do need to bother with this setting, it is used to declare the text character that is to act as the "terminating character" for lithology descriptions and for text columns. This will only be visible if you view the data file as text or open the ".DAT" file in another application. The default, as shipped with the program, is the "A" character, typically the upper-case character on the "6" key.



If you wish to change the setting, simply type in the prompt window the **single** preferred character to act as the text terminator. Or, to reset the terminator to the default, click on the **Default Terminator** button. If you change the text terminator character, be sure that it is one not normally used as text within the lithologic descriptions or text blocks of your data file.

Factory default setting: ^

4. **Break descriptions on space:** This setting, by default activated, would need to be changed only if you are entering descriptions using a language character set that does not separate words with spaces.

If activated (with a check-mark), LogPlot will wrap the text in a lithologic description column or a text column so that the line breaks occur at the spaces between words.

If deactivated (no check-mark) LogPlot will wrap the text at any character location based on available space.

Program Files Settings



The Program Files tab is accessible by clicking on the **Options** toolbar button, shown above, and then clicking on the **Program Files** tab. Or, you can select the **Program Files** command in the LogPlot **Options** menu.

This tab is used to select the name of the Keyword, Pattern, and Symbol files to be used in the program. LogPlot permits you to maintain different copies of these files, for use with different data sets or in different project areas. For example, for a geotechnical soil boring log you might wish to use the USCS keyword and pattern library that are shipped with the program. For a water well, you may wish to use the USGS keyword and pattern tables.

Many users find it handy to keep active keyword, pattern, and/or symbol files right within the directory in which their data files are stored, so that all project data can be kept together.

! You can also select the name of the active file from within the Keyword Editor, the Select Pattern window, and the Select Symbol window. Any file name changes you make in those program windows will be reflected in the **Program Files** tab when it is next displayed.

Factory default settings:

Keyword file: "LP2003.key"

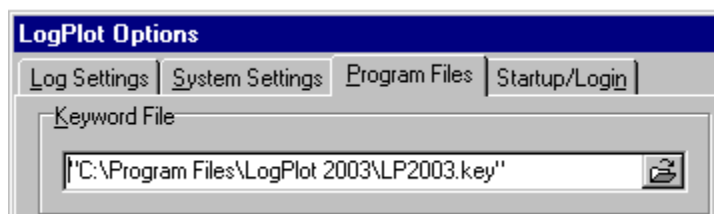
Pattern file: "rockutil.pat"

Symbol file: "rockutil.sym"

All of these files are installed into the main LogPlot program directory.

Select a different Keyword Table

1. To change the name of the keyword file to be used in the program, click on the open-file button to the right of the name's prompt.



2. In the displayed window, locate the name of the file to be loaded, accessing other drives or directories as necessary. Be sure the keyword file has the extension ".KEY."

The keyword file structure in LogPlot2003 has changed, so LogPlot v.1, 97, 98, and RockWorks keyword files must be imported. See the Keyword Editor for details.

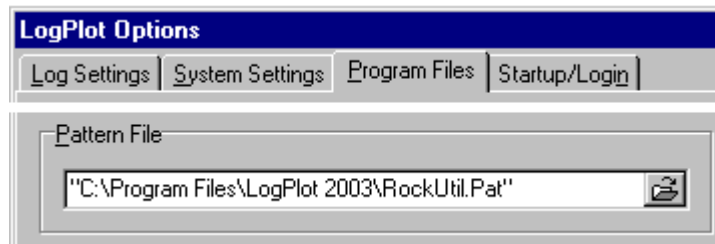
3. Select the desired file name by clicking on it.
4. Click the **Open** button to accept the selected file name. Or, click on **Cancel** to throw out any changes.

You will be returned to the **Program Files** tab with the new file name displayed as default. You may repeat this process as necessary to change other file names.

The program will now use this keyword table when reading your lithology, percent, and well construction data and determining the patterns and colors to be used to represent them in the log.

Select a different Pattern Table

1. To change the name of the pattern file to be used in the program, click on the open-file button to the right of the name's prompt.



2. In the displayed window, locate the name of the file to be loaded, accessing other drives or directories as necessary. Be sure the pattern file has the extension ".PAT."

The pattern files that you select can be created in either LogPlot (version 1, LogPlot97, 98, or 2001) or RockWorks99 or 2002.

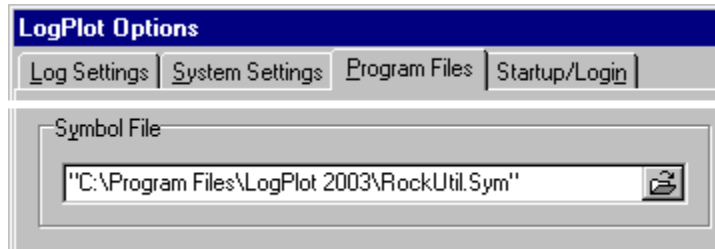
3. Select the desired file name by clicking on it.
4. Click the **Open** button to accept the selected file name. Or, click on **Cancel** to throw out any changes.

You will be returned to the **Program Files** tab with the new file name displayed as default. You may repeat this process as necessary to change other file names.

The program will now use this pattern table when displaying patterns in the Keyword Editor and in compiled logs.

Select a different Symbol Table

1. To change the name of the symbol file to be used in the program, click on the open-file button to the right of the name's prompt.



2. In the displayed window, locate the name of the file to be loaded, accessing other drives or directories as necessary. Be sure the symbol file has the extension ".SYM."

The symbol files that you select can be created in either LogPlot (version 1, LogPlot97, 98, or 2001) or RockWorks99 or 2002.

3. Select the desired file name by clicking on it.
4. Click the **Open** button to accept the selected file name. Or, click on **Cancel** to throw out any

changes.

You will be returned to the **Program Files** tab with the new file name displayed as default. You may repeat this process as necessary to change other file names.

The program will now use the selected symbol table when displaying graphic symbols in the compiled logs.

Startup/Login Settings

Startup/Login Settings



The Startup / Login tab is accessible by clicking on the **Options** toolbar button, shown above, and then clicking on the **Startup / Login** tab. Or, you can select the **Startup / Login** command in the LogPlot **Options** menu.

This tab is used to tell the program to hide the initial log-in screen that LogPlot normally displays, and (if hidden) to establish the log-in settings.

1. **Hide Network / Single Use Screen:** Insert a check in this box if you wish to turn off the display of the initial program screen that prompts you to select "Single User Version" or "Network Version".

If activated, select **Single User** if you have purchased an individual license of LogPlot.

Or, select **Network User** if you have purchased a network license of LogPlot. If you are running the network version, you'll need to enter the network login information:

User ID: This is typically your name or other unique identifying string. The ID string is limited to 20 characters, including spaces. Your ID will be stored in the network Certificate File while you are using the program. When you exit LogPlot2003 using the program's **File / Exit** command, your ID will be logged out of the Certificate File.

User Directory (Folder): Click on the open-file button (to the right of the prompt) to access the directory in which you want the LogPlot2003 program to keep all of your configuration settings and system libraries. This can be a local folder, or a folder elsewhere on the network to which you have read/write access. Each network user should maintain their own User Directory to prevent others overwriting their libraries of symbols, patterns, etc.

The User Directory should not be the same folder as the user's *data* folder in which data files and log design files are stored. The user can maintain many data directories, but only a single User Directory.

Network "Certificate File" Location: Click on the open-file button (to the right of the prompt) to access the directory in which the network's certificate file "LP2003.LIC" has been installed. You may not run the network version of LogPlot2003 without access to the Certificate File which maintains the network count, among other things. Please see your network administrator if you cannot locate this file.

Printer Settings

Using the **Page + Print Setup** command, you can establish a default printer and page size, which the Log Designer window uses to dimension the active design area and which LogPlot will use not only in printing, but also in laying out your log pages on the screen. **Page + Print Setup** can be accessed from the Data Editor or Log Designer **File** menu, or using the **Setup** button from any of the **Settings** dialog boxes.



At the top of the displayed window you will see a summary of the current printer information: the printer name, the current paper size, the printable area on that paper for that printer.

In the bottom portion of the dialog box, you will see the current length and width dimensions for your log page. If any of the dimensions are shown in red, then they exceed the available dimensions for the page as shown at the top of the window.

1. Verify printer name, paper size, paper format (e.g. single-sheet or banner), paper orientation: Click on the **Printers** button to see a standard Windows Print Setup dialog box where you can establish these settings. Typically you can press the Properties button to access the printer's suite of options.
2. Click **OK** (probably several times) to return to LogPlot's Page Setup window.
3. Back in the LogPlot Page Setup window, verify that the printer, paper size, and printable length and width have been updated in the Printer Info portion of the window. If you want to print a continuous log, be sure the Printable Length equals the paper length (e.g. no margins). The paper length can be as short as 11" for continuous printing as long as there are no top and bottom margins and the full length of each page will be used.
4. Update the LogPlot page size based on the current printer settings: Click the **Set Default Size** button.
5. If you wish to change the units from inches to centimeters or vice versa, click the appropriate radio button. This will update the Printer Info (top) automatically. Be sure to click the **Set Default Size** button again to re-compute the new Log Designer page size.
6. When the printer and page settings are established to your satisfaction, click **OK** to return to the Settings window.

! Any changes you make here will also be recorded in the Log Designer window and stored with the current LDF file.

Please refer to Setting the Log's Page Size (page) for more complete instructions.

See your Windows documentation for information about installing printer drivers, and see your printer's documentation regarding specific printer settings.

Compiling, Display Tips

See these Help links:

Errors during compiling. See **Help / Contents**, click Contents tab, expand Reference, and expand Compiling, Display Tips.

Missing lithologic patterns. See Help as above.

Partial fills for lithologic patterns. See Help as above.

Incorrect lithologic patterns. See Help as above.

Crowded lithologic descriptions. See Help as above.

Incorrectly positioned or formatted parts of the log. See Help as above.

Blank log components. See Help as above.

Edit-Text problems. See Help as above.

Printing Tips

See these Help links:

Design Jet Tips. See **Help / Contents**, click Contents tab, expand Reference, and expand Printing Tips.

Epson Tips. See Help as above.

Slow printing. See Help as above.

Sample Log Designs and Data Files

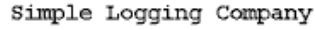
The LogPlot program is shipped with more than 20 pre-designed Log Design Files (LDF) and associated LogPlot Data files (DAT). This section illustrates some of the sample designs.

Note: Check our web site for new log samples! The address: <http://www.rockware.com>.

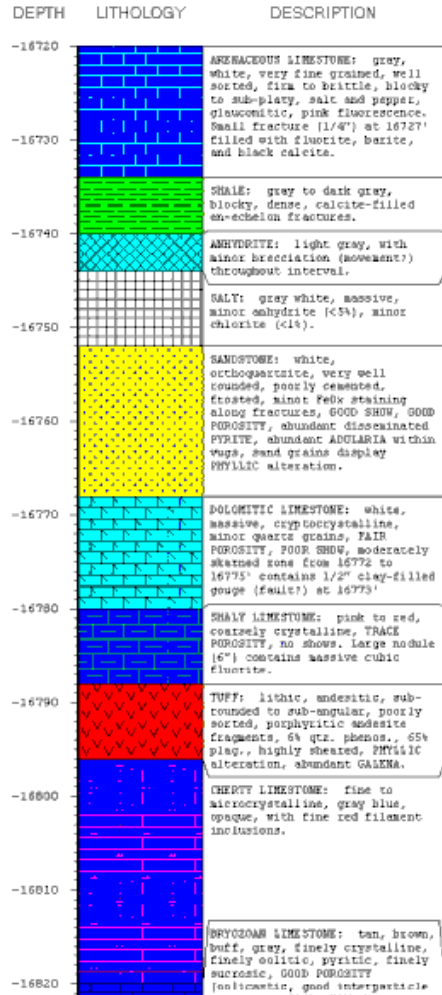
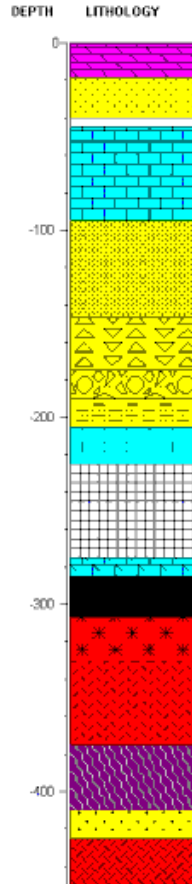
General log designs

(left) Lithology1.dat Lithology1.lcf
Simple lithology
(In LogPlot2001 = log1.dat, lcf)

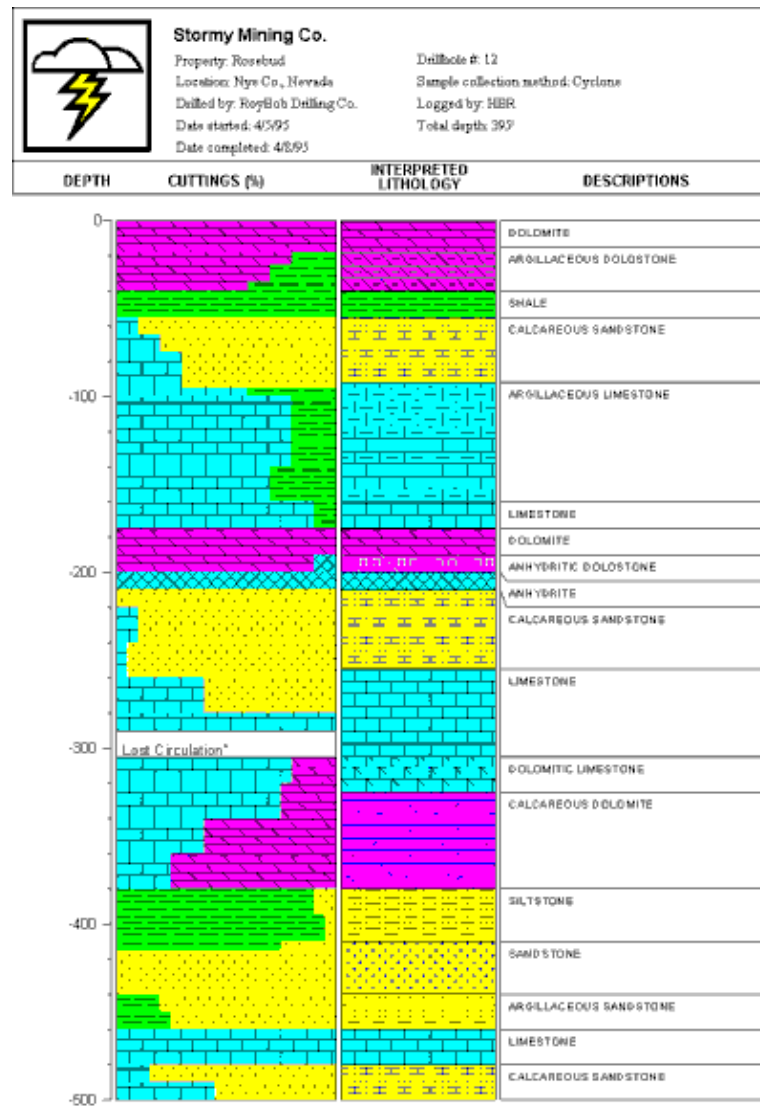
(right) Lithology2.dat Lithology2.lcf
Simple lithology with descriptions
(In LogPlot2001 = log2.dat, lcf)



Logger: Sam Peabody

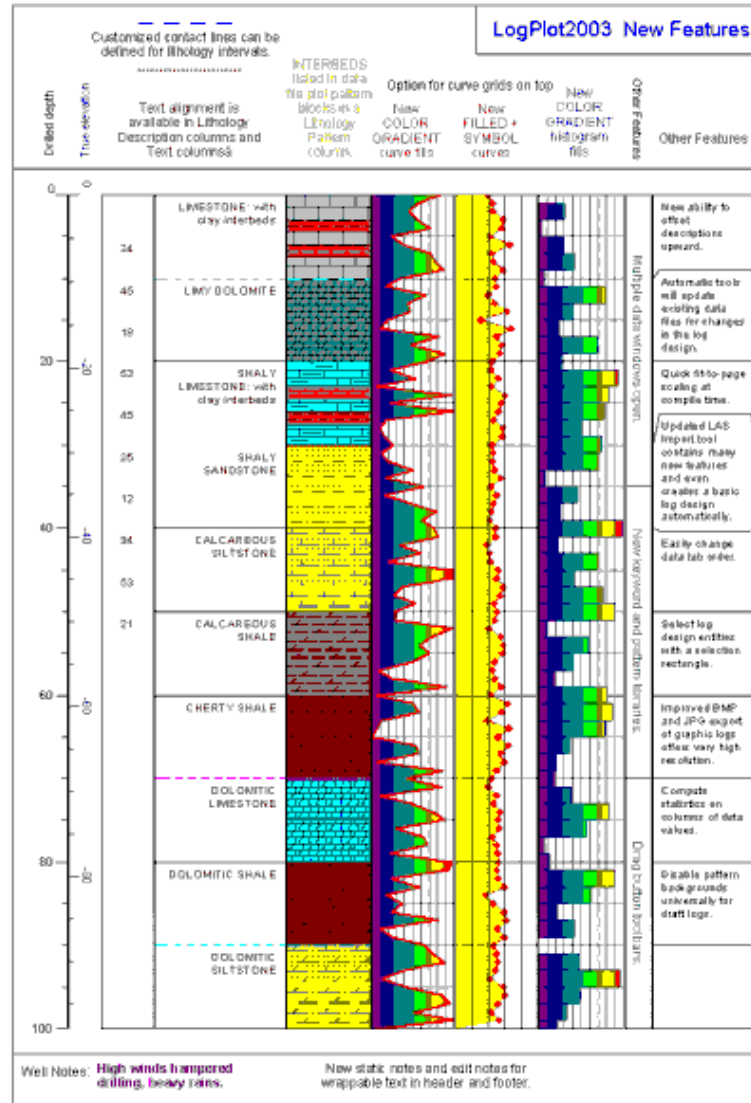


Lithology3.dat Lithology3.ldf Lithology with descriptions and cuttings
(In LogPlot2001 = log3.dat, ldf)



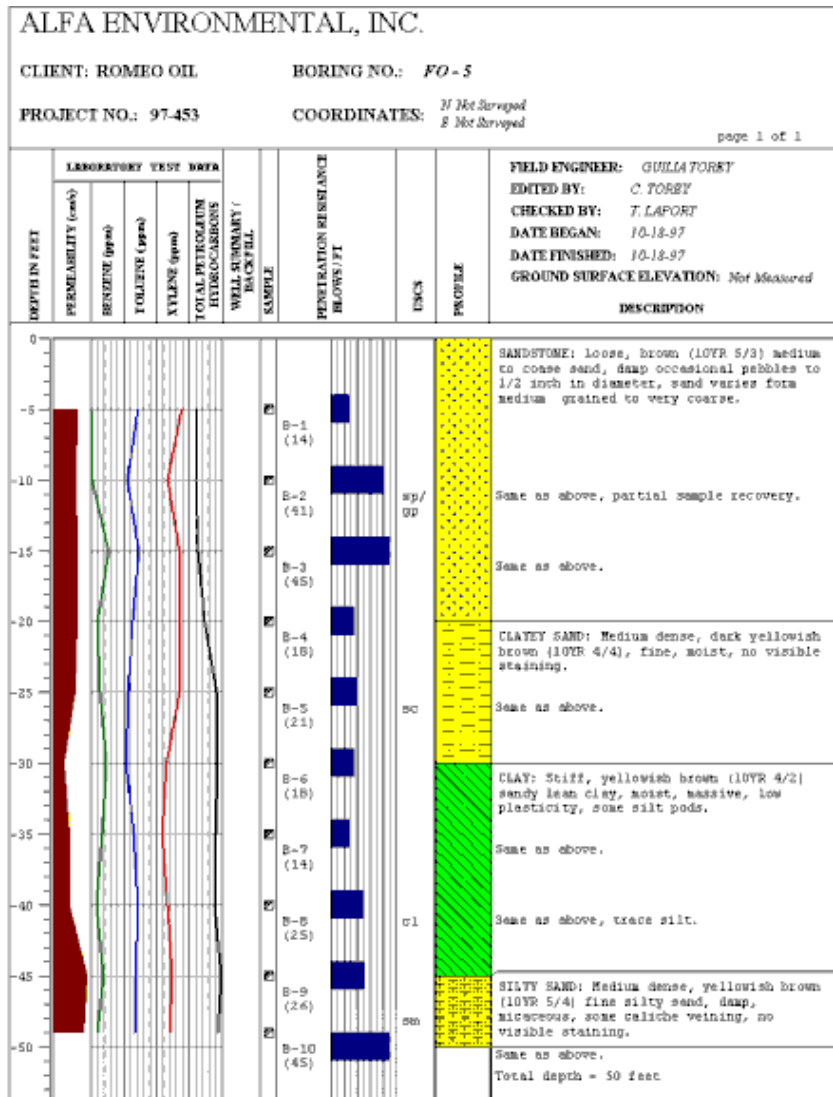




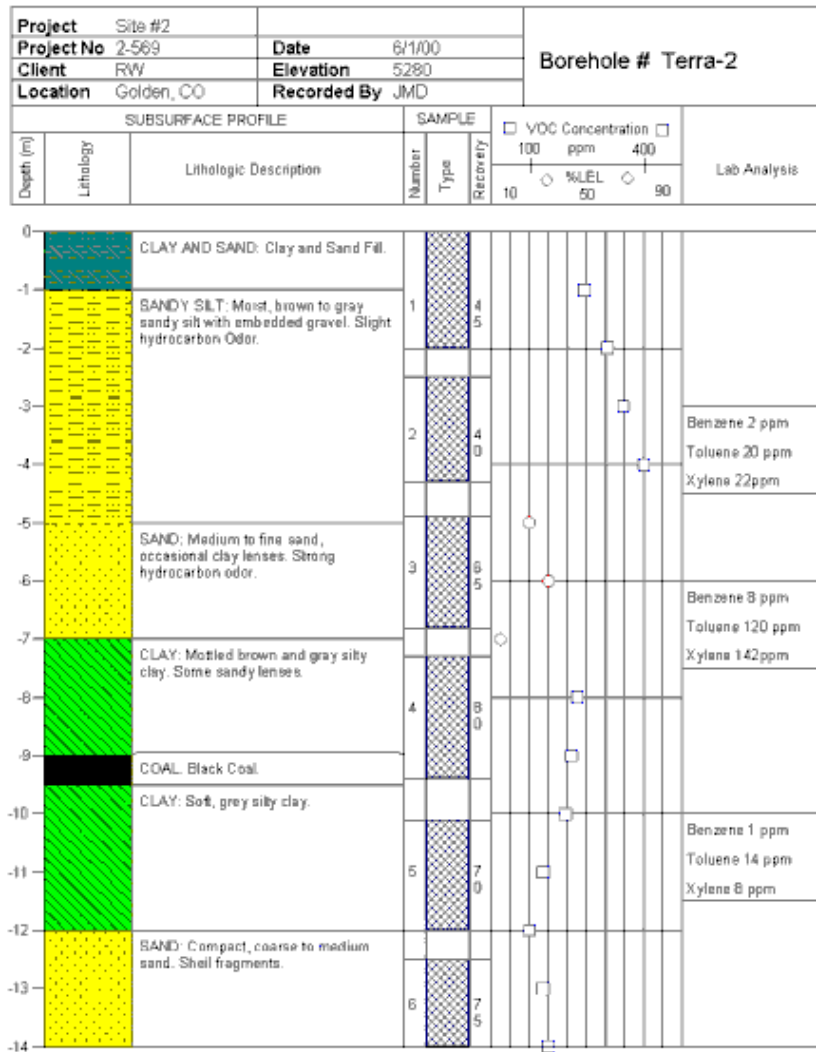


Environmental/Geotechnical Log designs

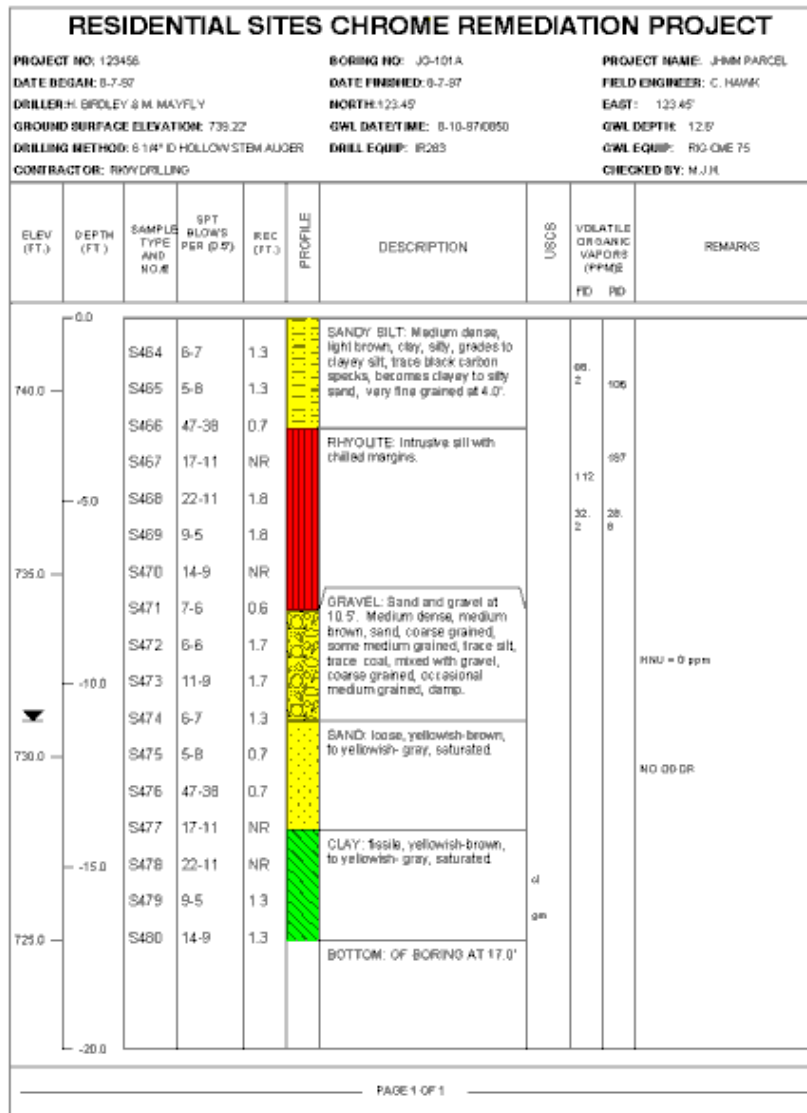
Enviro-geotech1.dat Enviro-geotech1.ldf Soils, hydrocarbons, lithology
(In LogPlot2001 = log15.dat, ldf)



Enviro-geotech2.dat Enviro-geotech2.lbf Lithology VOC curve
(In LogPlot2001 = log21.dat, lbf)






Enviro-geotech3.dat Enviro-geotech3.ldf Soils, lithology, volatile vapors
(In LogPlot2001 = log16.dat, ldf)



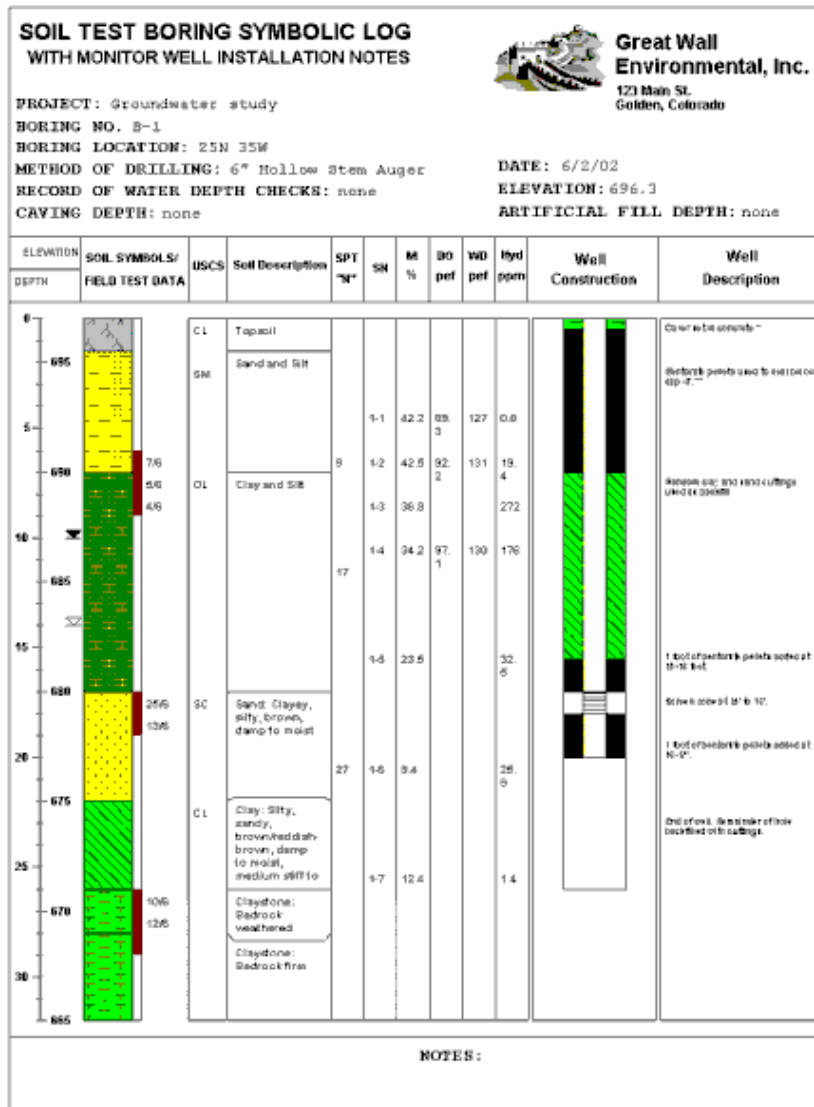
Enviro-geotech4.dat Enviro-geotech4.ldf Soils, lithology, text, well installation
(In LogPlot2001 = log11.dat, ldf)

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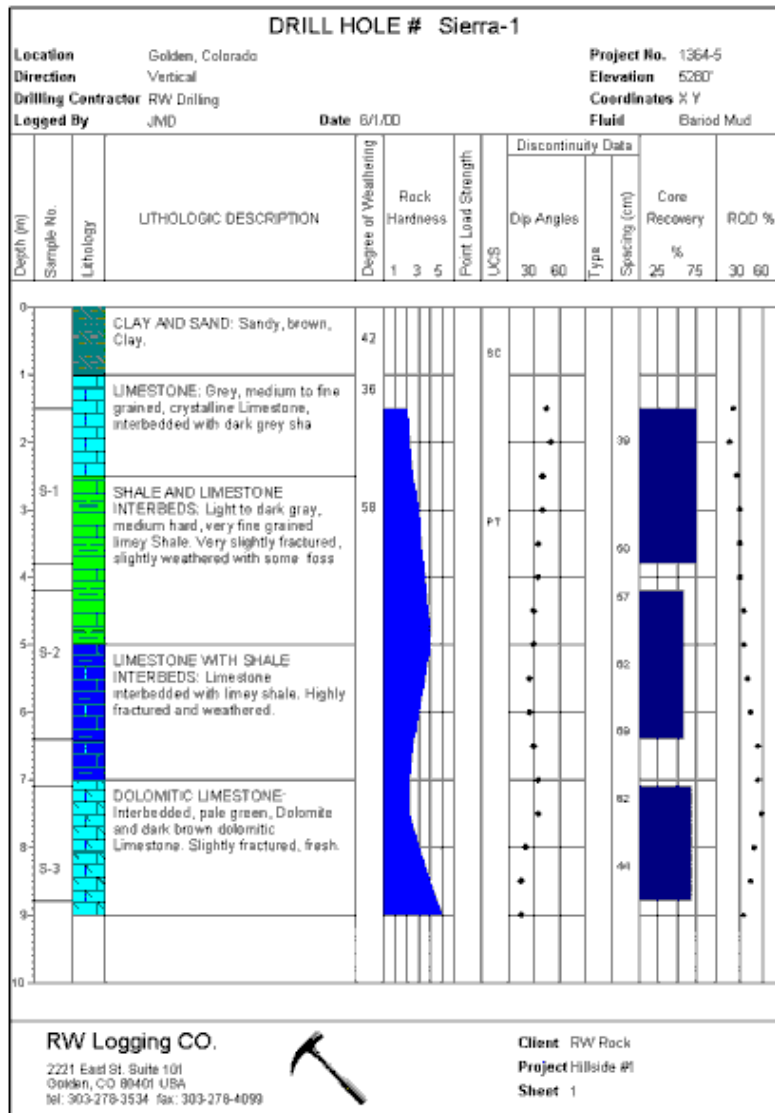
Enviro-geotech5.dat Enviro-geotech5.ldf Lithology, soils, boring completion
(In LogPlot2001 = log13.dat, ldf)

 TriStar Environmental Integrated Environmental Solutions 6709 Bertbold Ave., Suite 100 Thermopolis, WY 89762				FIELD BOREHOLE LOG BOREHOLE NO.: RFP-34B TOTAL DEPTH: 30'				
PROJECT INFORMATION				DRILLING INFORMATION				
PROJECT: Bandelier Gas Station				DRILLING CO.: MacPhearson Drilling Co.				
SITE LOCATION: 3300 W. Rimrock Drive				DRILLER: Doug Oakley				
JOB NO.: 10-001-01				RIG TYPE: CME 45				
LOGGED BY: Zachary Smith				METHOD OF DRILLING: 6" Hollow Stem Auger				
PROJECT MANAGER: Bruce Stuart				SAMPLING METHODS: California Split Spoon				
DATES DRILLED: 6-02-93 to 6-03-93				HAMMER WT./DROP: 140 LB., 30 IN.				
 Water level during drilling				 Water level in completed well				
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0			CEMENT, AB Barabook					
		SC	SAND: grey, silty		3.5			
-5		SC	SAND: light brown, silty; granules small	B-1-6	8	0.0		Concrete seal
		GW	GRAVEL: angular, poorly sorted		16			
-10		GW	CLAY: yellow, brown, moist	B-1-11	10	0.0		Bentonite
		GW	CLAYSTONE: brownish, hard					
-15		CL		B-1-13, 14		0.0		
			Clay and Sand					
-20					239			Screened interval from -14' to -25'
		SN	Gravel and Sand with trace of silt, gray to brown	B-2-18	13			Cap at -25'
-25			Bedrock					Backfilled with bentonite.
-30								
NOTES:								Page 1 of 1

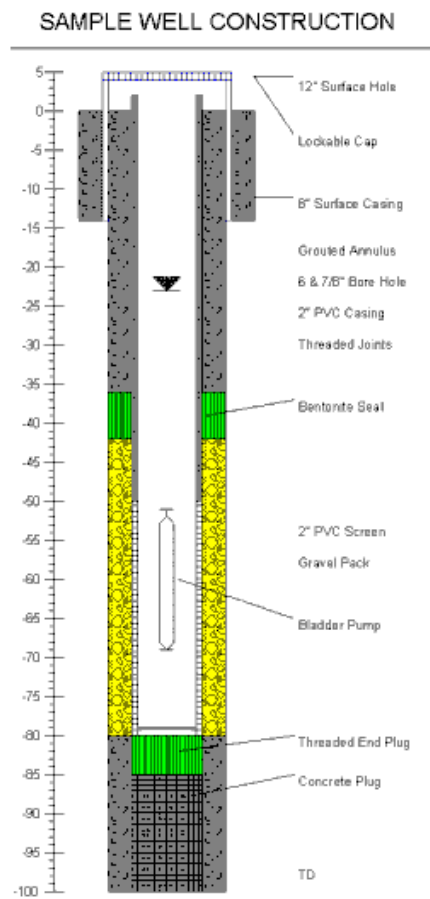
Enviro-geotech6.dat Enviro-geotech6.ldf Lithology, soils, well construction
(In LogPlot2001 = log12.dat, ldf)



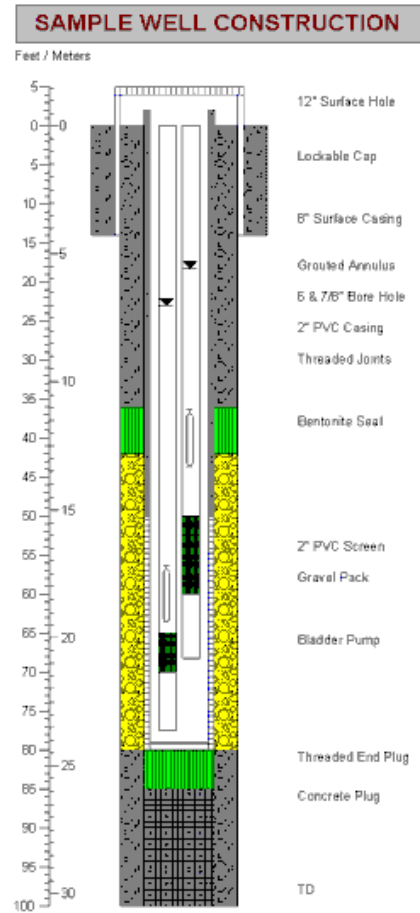
Enviro-geotech7.dat Enviro-geotech7.lbf Lithology, strength, dip, RQD
(In LogPlot2001 = log20.dat, lbf)



(left) Enviro-geotech8.dat Enviro-geotech8.lbf
Simple well construction
(In LogPlot2001 = log18.dat, lbf)




(right) Enviro-geotech9.dat Enviro-geotech9.lbf
Well construction with 2 borings
(In LogPlot2001 = log18-2boring.dat, lbf)



Penn-DOT.dat Penn-DOT.Idf PA DOT geotechnical log
(In LogPlot2001 = log1.dat, ldf)

PROJECT NAME: Philly 00		LOCATION: Philadelphia		SECTION: T7N	SEG.: 22G	OFFSET: 200'	CO: Mackery
STATION: 106-9		OFFSET FROM CL:		SURFACE ELEV.: 155'	MUNICIPALITY: Johnstown		
DATE STARTED/COMPLETED: June 3, 1998		DRILL CONTRACTOR: D. McEachran		DRILLER: McEachran & Son			
ENGINEER: Aaron McEachran		HELPER: Jesse Wolfe		ENGINEERS REP: J. Goldfinger			
DRILLING METHOD: Air Rotary		CASING DIAMETER (OD/ID): 8.25"		NO. ROPE TURNS: 6 1/2			
DRILL RIG TYPE: Rotary L16		WEIGHT: 45LB		DROP: 4"			
SOIL SAMPLING / HAMMER TYPE: VL Hammer		SAMPLER DIAM: 4.10"		AUGER Type: CCW Bite Size: 8"			
ROCK SAMPLING / CORE BARREL TYPE: Diamond Core		SIZE: 4.10"		Degrees from Vertical: 0°			
DIRECTION OF HOLE: Vertical		TIME: 12:26PM		DATE: June 3, 1998			
WATER LEVEL DEPTH: 3.6							

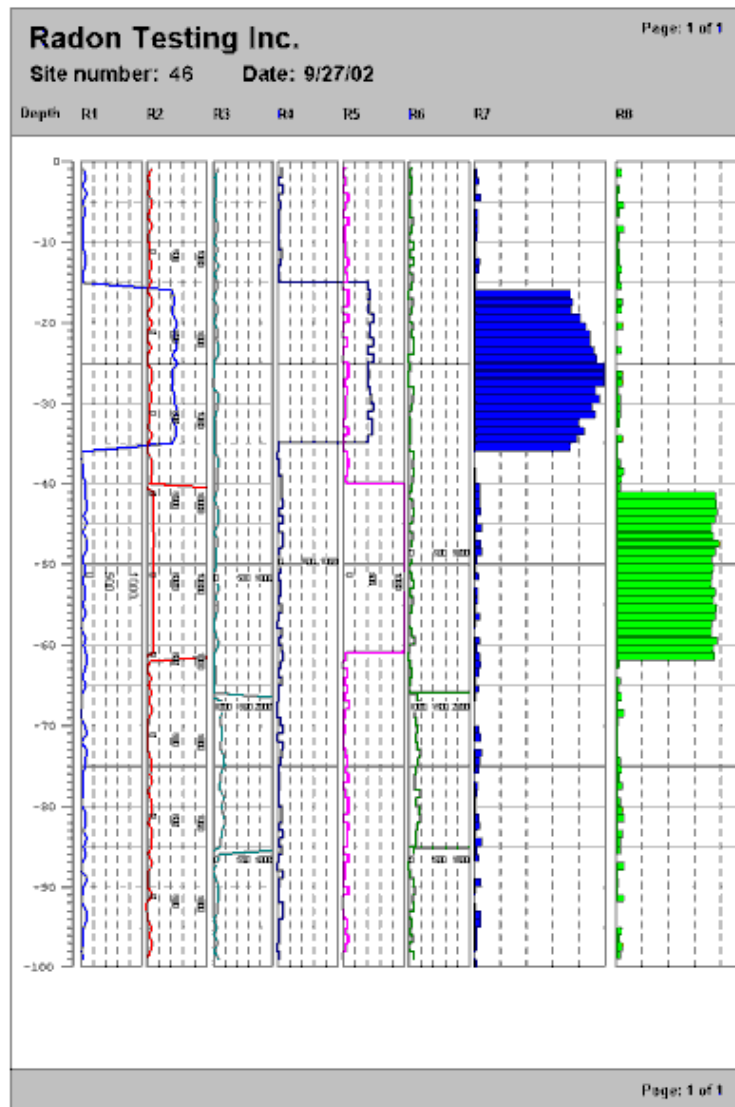
DEPTH (FT.)	SAMPLE NO. OR RUN NO.	BLOWS PER 0.5 FT ON SOIL SAMPLER	REC (ft)	ROD (ft)	DESCRIPTION (COLOR, TYPE, MOISTURE)	R C (ft)	REMARKS
0					TOPSOIL		
1			13	26.8	SANDY SILT: Tan, loose and damp.	42.2	
2			13	25.3		42.5	HNU=12ppm
3		7/6	7	27.6		36.6	
4	22-1	5/6	NR	22.1		35.2	Gasoline odor
5		4/6	18	18.6			
6			18	18.2	CLAY AND SILT: Dark green-brown, phyllitic, wet.	23.5	
7	22-2	25/6	17	15.3		17	
8		13/6	13	13.1	SAND: White, poorly cemented, wet.		
9	22-3	10/6	7	6.7		9.4	
10							



RockWare, Inc.
 2221 East St.
 Golden, CO 80401
www.rockware.com

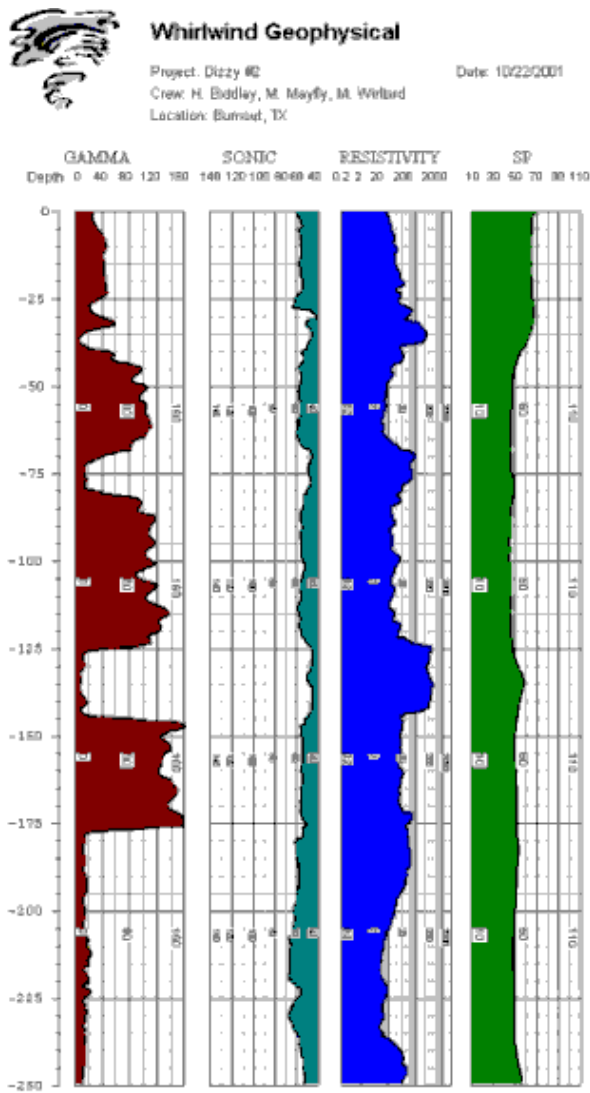
BORING NO: 22-6J
 Sheet 1 of 1

Radon.dat Radon.lbf Radon testing log with curves and histograms
(In LogPlot2001 = log17.dat, lbf)

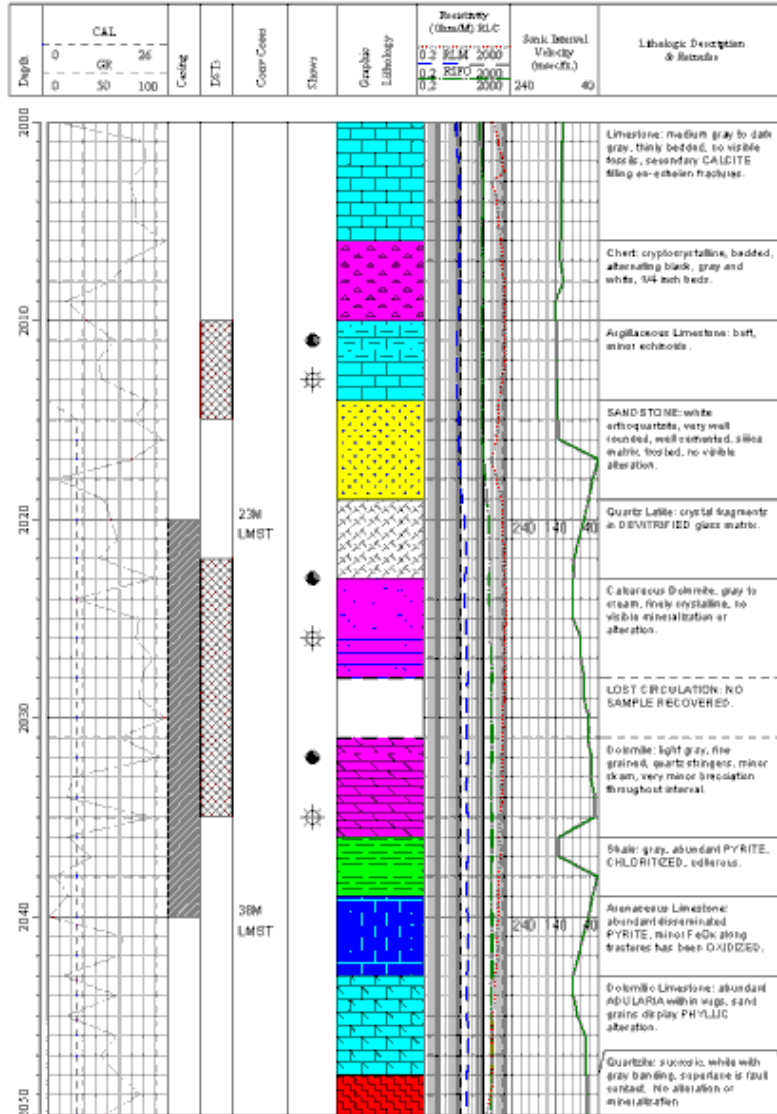


Geophysical log designs

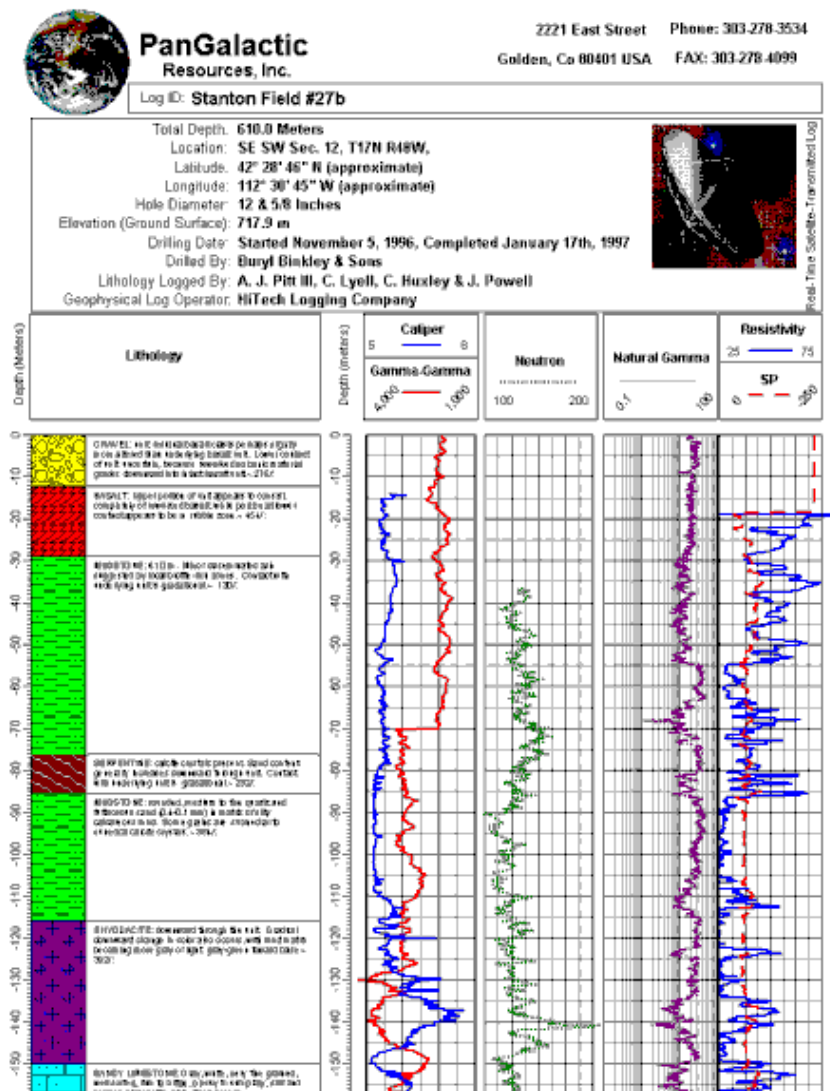
Geophysical1.dat Geophysical1.lbf Gamma, resistivity, sonic log (curves)
(In LogPlot2001 = log4.dat, lbf)



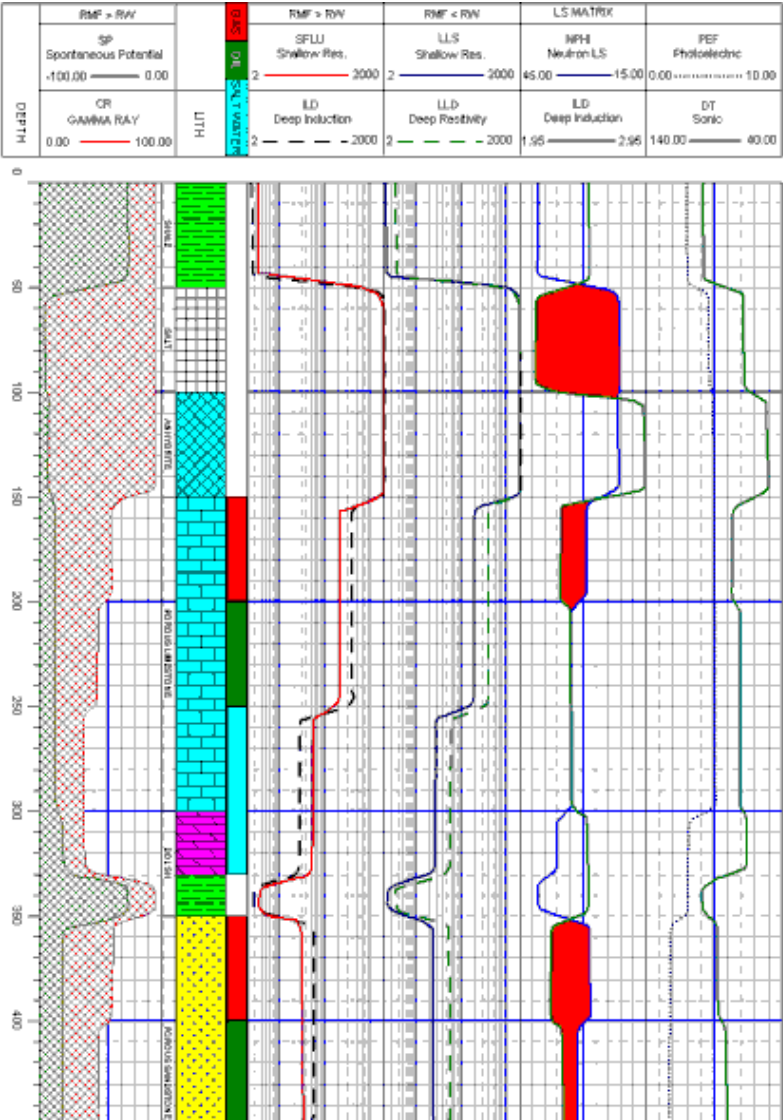
Geophysical2.dat Geophysical2.lbf Lithology, caliper, resistivity, sonic (curves)
(In LogPlot2001 = log8.dat, lbf)



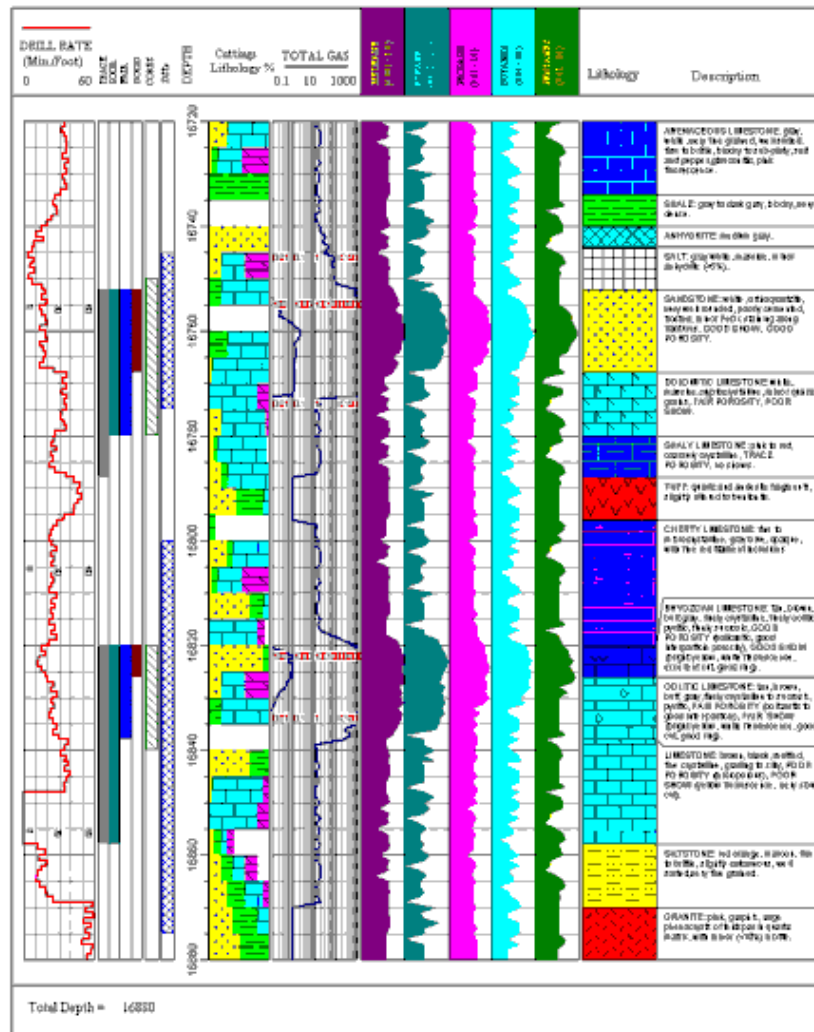
Geophysical3.dat Geophysical3.Idf Lithology, caliper, gamma, neutron, natural gamma, resistivity,
 SP curves
 (In LogPlot2001 = log14.dat, Idf)



Geophysical4.dat Geophysical4.lbf Lithology, 10 elog curves.
(In LogPlot2001 = Sample elog.dat, lbf)

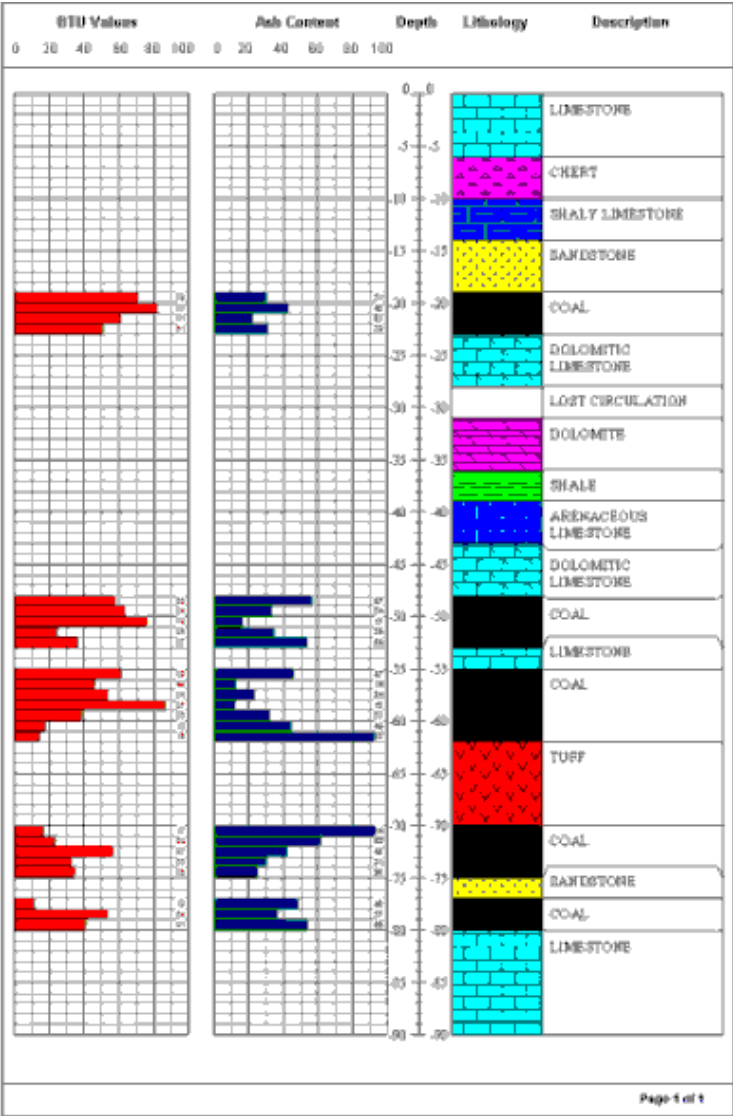


Mudlog1.dat Mudlog1.lbf Lithology, 5 gas curves, drill rate, cuttings
(In LogPlot2001 = log9.dat, lbf)

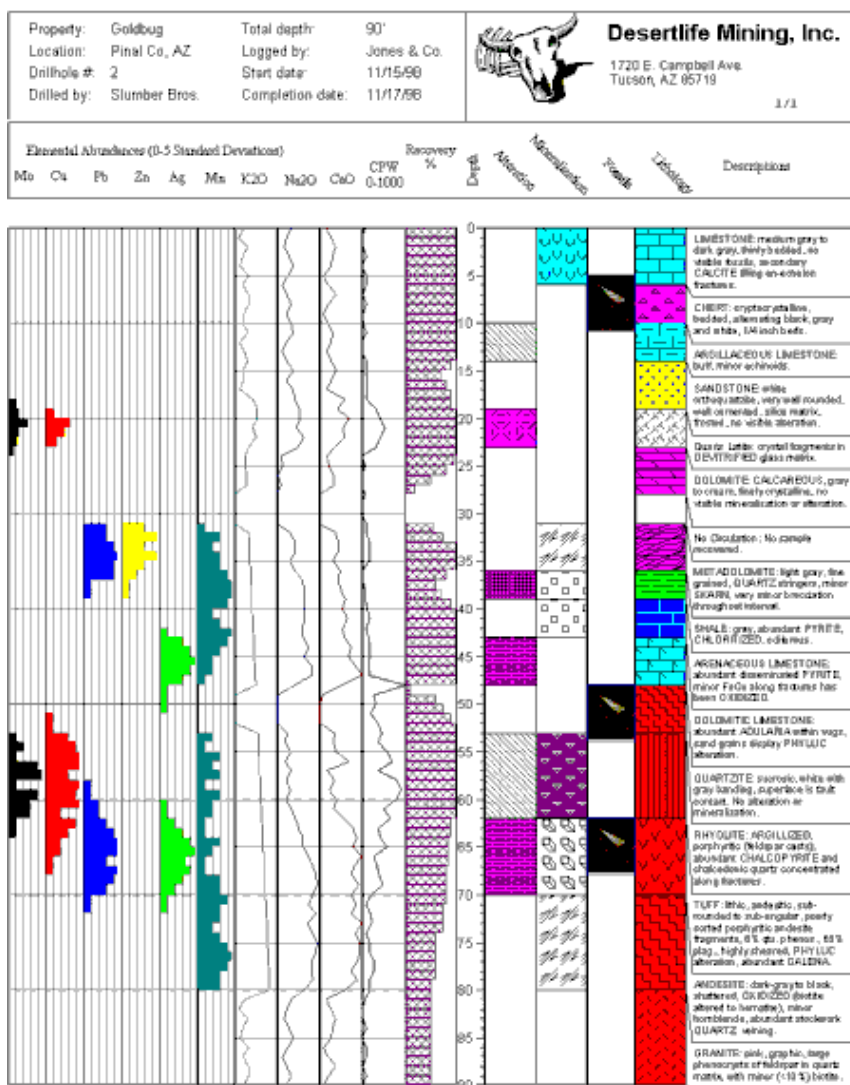


Mining log designs

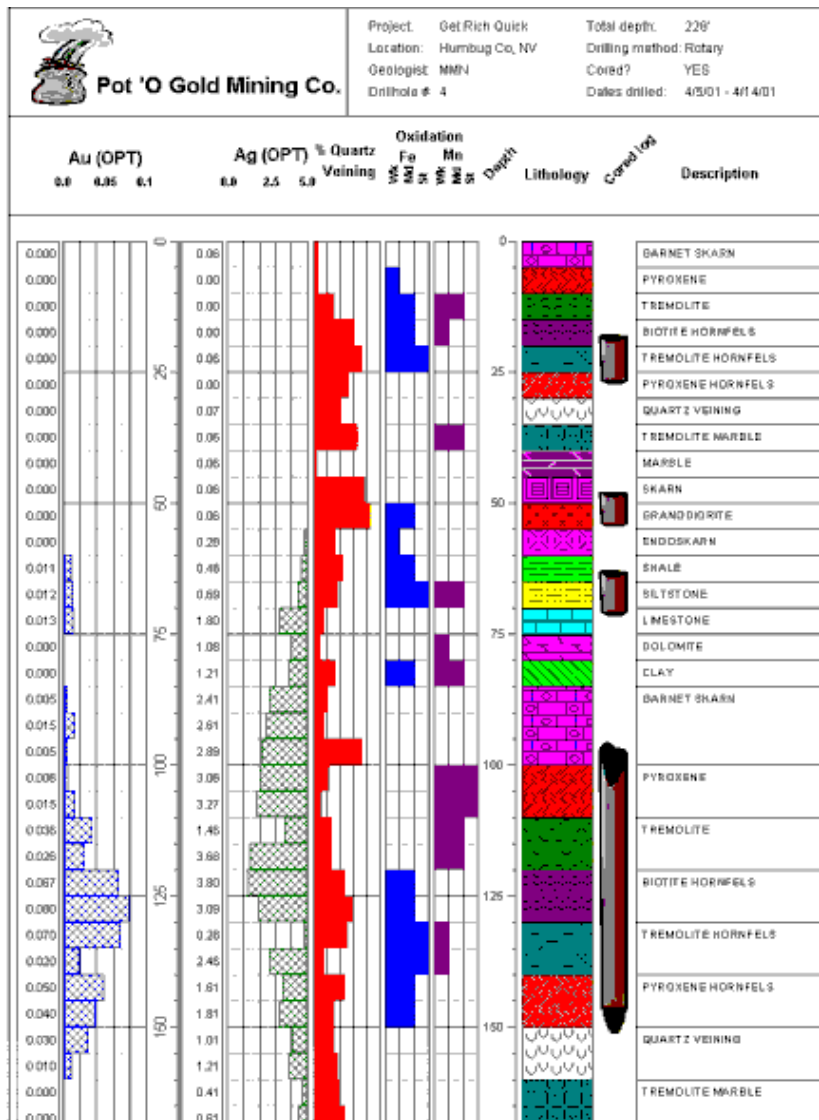
Mining1.dat Mining1.lbf Coal log with lithology, BTU and ash histograms.
(In LogPlot2001 = log7.dat, lbf)



Mining2.dat Mining2.ldf Minerals exploration with elemental abundances, lithology, alteration, mineralization, fossils.
(In LogPlot2001 = log6.dat, ldf)



Mining3.dat Mining3.lbf Minerals exploration with ore grades.
(In LogPlot2001 = log5.dat, lbf)



Installed Program Files

ijl15.dll Intel JPG library.
 Install.log Installation log.
 License.txt Lists the terms of the RockWare license agreement.
 LP2003.cnt LogPlot2003 Help contents.
 LP2003.exe LogPlot2003 program.
 LP2003.hlp LogPlot2003 Help file.
 LP2003.inf Revisions list
 LP2003.key Large, generic keyword library.
 LP2003_TUT.hlp LogPlot2003 tutorial file.
 Readme.txt Additional documentation.
 Rock.err Reference list of program error messages.
 Rockutil.pat Large, generic pattern library.
 Rockutil.sym Large, generic symbol table.
 Windows\System\RoboEx32.dll

LogPlot2003 File Types:

.DAT - data files (text) Samples are installed in the "Logfiles" folder.
 .LDF - LogDesign files (binary proprietary format). Samples are installed in the "Logfiles" folder.
 .JPG - LogDesign preview files (binary JPEG format). Created by LogDesign automatically. Previews can be turned on in Options / System Settings.
 .ENM - LogDesign entity type and name file (text). Created by LogDesign automatically.
 .LPT – LogView files (binary proprietary format). Can also be read by free LogView program available on RockWare's web site.

Sample Files:

sample batch.txt Sample batch file.
 Sample.las Sample LAS import file.

See also Sample Log Designs and Data Files for a listing of the DAT and LDF files that are shipped with LogPlot.

Command Line Execution

Running LogPlot with Command Line Parameters

LogPlot supports command line processing and command line batch file processing. The implications of this range from simple loading of a data file upon program launch, to automatic display of the data file and establishment of program settings and/or compiling of data files and display of a log.

These command line tools are used for a single data file only.

! See also Compiling a Log Batch if you wish to compile multiple data files, within the program itself.

Option 1: Load a Data File at Program Startup

If you want a particular data file to be loaded when LogPlot2003 is started, simply list the name of the LogPlot data file (.DAT), including its full path, after the program name on the command line.

For example, to start up LogPlot and load the data file named "project_a.dat", you would use the following command line:

```
Logplot2003.exe c:\data\project_a\project_a.dat
```

If there are any space characters in the path, such as for the directory "Program Files," be sure to enclose the information in quotation marks:

```
Logplot2003.exe "c:\program files\logplot2003\logfiles\log1.dat"
```

Option 2: Load a Data File and Establish Settings at Program Startup

If you want to automate the steps of starting the LogPlot program, automatically loading a particular data file AND establishing a number of program settings, you can do so by creating a "batch" file. This file contains a list of batch commands that declare file names and program settings to be honored when the program starts.

To process a batch file when the LogPlot2003 program is started, you list the "BATCH=" command and then the name of the LogPlot Batch file after the program name on the command line.

```
Logplot2003.exe "BATCH=c:\program files\project_a\batch_a.txt"
```

See the following topics for details about the batchcommand structure.

Option 3: Load a Data File, Establish Settings at Program Startup, AND Compile and Display the Log

If you want to automate the steps of starting the LogPlot program, automatically loading a particular data file and establishing a number of program settings, AND then compiling the data and displaying the log, this is also done by creating a "batch" file. This file contains a list of batch commands that declare file names and program settings to be honored upon program startup.

The difference between this batch and that in Option 2, above, is that this file contains the "DISPLAY" command.

To process a batch file when the LogPlot2003 program is started, you list the "BATCH=" command and then the name of the LogPlot Batch file after the program name on the command line.

```
Logplot2003.exe "BATCH=c:\program files\project_a\batch_a.txt"
```

See the following topics for details about the batch file structure.

Topics:

Batch File Requirements: See **Help / Contents**, click the Contents tab, expand the Reference heading, and expand the Command Line Execution heading.

Batch File Commands: See Help as above.

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